

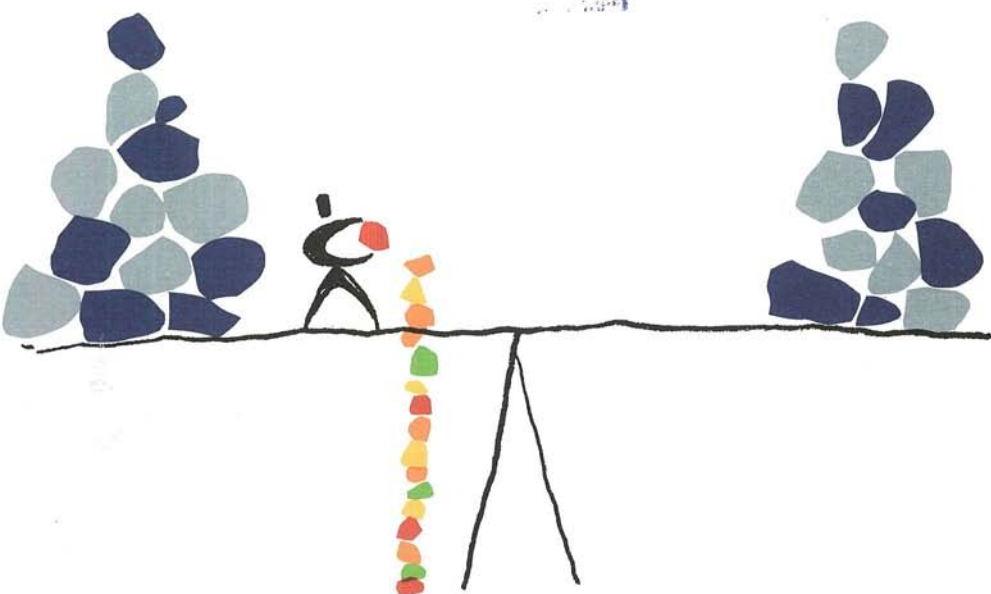
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ARMS CONTROL: THIRTY YEARS ON

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Arms Control: Thirty Years On

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Preface to the Issue

“Arms Control: Thirty Years On”

IN LATE 1960, *Dædalus* published a special issue entitled “Arms Control.” That issue, praised by many, including the newly-elected President of the United States, John F. Kennedy, explored a theme that was still then in its infancy. Although the explosion of two atomic devices over Japan in the summer of 1945 had generated new and important investigations of the implications of atomic weapons for war and peace, with a handful of pioneer studies of great distinction appearing in the 1950s, principally in the United States, arms control, as a nuclear age concept, remained somewhat novel and inchoate.

Jerome B. Wiesner, in writing the Foreword to the *Dædalus* issue, explained its objective as he interpreted it—“to provide some of the basic information and understanding needed for an intelligent public discussion of the disarmament problem.” Wiesner went on to say: “To a distressing degree American citizens, who normally insist on free and open discussion of important issues facing their country, have turned away from the problems of arms control as being of such complexity and requiring access to so much secret military and political information as (supposedly) to be beyond the comprehension of the ordinary citizen. But, without a widespread understanding of the options

available to the nation and without some ability on the part of the general public to judge the relative security of various alternatives, it will not be possible for the United States to find acceptable arms-limitation agreements or to accept the constraints such agreements will impose on the military activities of the country.”

Wiesner, remarking on the discussion groups and seminars held in the Boston area to deal with such issues during the preceding two years, spoke of their being “badly handicapped by the lack of published material relating to their studies.” The *Dædalus* issue was intended to go some way toward remedying that lack. Its authors, coming from a wide variety of academic disciplines and diverse professions, were in every instance citizens of the United States. Given the nature of the problems they were addressing, and the accelerated interest in the issues they were seeking to resolve, made even more urgent by the development of Soviet thermonuclear and missile capabilities beyond any previously imagined possible, their observations and reflections took on new importance for many outside the United States. Indeed, in early 1961, *Dædalus* published the initial reactions to the *Dædalus* study of five distinguished Europeans: three from the United Kingdom, two from France.

In the years that followed, partially in response to certain of the propositions first aired in the original *Dædalus* volume, great efforts were made by the American Academy of Arts and Sciences to extend the discussions to include interlocutors from many parts of the world, including, obviously, the Soviet Union. If arms control in a thermonuclear world was to have any success at all, dialogue between the Americans and the Soviets was imperative. Habits acquired in earlier periods—habits of secrecy, for example, once thought to be essential in military matters—were seen to be positively dangerous in the new world of thermonuclear arms. On matters of testing, proliferation, and negotiation, a whole new vocabulary had to be developed, as much a lexicon of novel concepts as of newly minted words.

By the end of the 1980s, given what were widely perceived to be the vastly improved relations between the United States and the Soviet Union, it seemed an appropriate time to reflect on whether the whole arms control effort, launched initially in the United States, had indeed achieved the aims intended, whether the expectations of an earlier period had been realized, and whether the analyses and prescriptions—set forth in *Dædalus* in 1960 and embellished in the

decades that followed—had indeed mattered significantly in preventing war, in reducing the hazards of thermonuclear catastrophe.

The planning for this issue of *Dædalus* began in 1988, a year before the demolition of the Berlin Wall, months before 1989 came to be seen as a sort of *annus mirabilis*, with promises of peace and democracy being instantly achieved. In the euphoria of those brief months, arms control questions appeared to be somewhat less compelling, seeming to have historical importance, obviously, but without any very pressing contemporary urgency. If the problem had always been principally one of American-Soviet rivalry, and if that rivalry had been reduced, attenuated, with new accords being readied to make permanent certain negotiated understandings, then the world of 1960, with its blustering and threatening Khrushchev, was indeed a thing of the past. So long as the new talk was principally of the “peace dividend” and of how it might best be spent, there was no compelling incentive to invest new thought into arms control problems and prospects. It was a good time for historical inquiry, for sorting out the record of recent decades. The future seemed suddenly secure in a way that it could never be so long as the superpowers were exchanging their rhetorical blows.

The events of 1990 have done much to discredit such utopian thinking. Its Pollyanna qualities are now blatantly apparent; a whole literature, the instant wisdom of the mid- and late-1980s, is now best suited for disposal in the paper shredder. Iraq’s aggression in the Gulf—closely following on a growing realization in many quarters of the extent of the continuing political and economic instabilities in Central and Eastern Europe, not to speak of those within the Soviet Union itself—gives wholly new meaning to the issue of arms control. While the world, quite properly, fixes its gaze principally on the immediate crises, there is an urgent necessity to think again, concretely, about arms control in the post-World War II era. Did the efforts of those decades help keep the peace in Europe, and if so, why, and how? Does that experience carry any lessons for the so-called post-Cold War world, and what are they? The *Dædalus* issue, “Arms Control: Thirty Years On” could not be emerging at a better time.

Still, some may conclude that it comes almost too early. We have not had the two years mentioned by Wiesner in his 1960 Foreword to rethink, in numerous continuing seminars and discussion groups,

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the experience of the last half century. Indeed, we are now suffering not from a surfeit of information on the twentieth century and its trials, but from an absence of reflection on why so many of the things thought to be permanent, immutable, have not proved to be so at all, and why indeed the unexpected has happened, with consequences scarcely prepared for.

Thanks are due to the George Gund Foundation and the Center for Science and International Affairs at the John F. Kennedy School of Government, Harvard University for their support of this project.

S.R.G.

Emanuel Adler

Arms Control, Disarmament, and National Security: A Thirty Year Retrospective and a New Set of Anticipations

THE PROJECT'S NATURE AND ITS OBJECTIVES

WE WILL REMEMBER THE COLD WAR for staying cold and ending cold. Its major crises, such as Cuba and Berlin, will slowly fade from our historical consciousness, as will the nightmares of Soviet tanks overrunning Western Europe and the memories of all those resources wasted on an arms race fueled by overblown suspicion and exaggerated threats. In retrospect, however, the most important legacy of the Cold War—its enduring contribution to international institutions and order—is the *practice of arms control*.

A special 1960 issue of *Dædalus* played a crucial role in laying the intellectual foundation for nuclear arms control practice and the “golden age of nuclear arms control.” The prediction by its contributors that US national security and the chances of avoiding nuclear war would both be enhanced were the superpowers to work together to stabilize the nuclear balance through arms control offered an alternative to the uncontrolled pursuit of military superiority and to what one of the contributors called the less menacing, but still unfortunate, tradition in politics of paying lip service to disarma-

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ment, so as not to offend the gentler elements of public opinion, while ignoring it in practice.¹ Although that issue of *Dædalus* did not invent nuclear arms control, and its contributors disagreed as to implications and goals, the dominant approach that emerged expressed the needs and fears of the 1960s generation as it sought to confront the nuclear age. The publication of the issue and its companion books marked the coming of age of nuclear arms control and altered US-Soviet relations irrevocably.

This 1990 special arms control issue of *Dædalus* constitutes a major reevaluation of nuclear arms control by its early theorists and their successors. The best way to commemorate the thirtieth anniversary of that historic issue is to review the fundamentals of arms control and assess its theory and practice. We are also motivated by the urgent need to look into the future and adapt the theory and practice of arms control to the post-Cold War world. This issue reflects the need for conceptual evolution. The contributors reevaluate the fundamentals of arms control, assess its achievements and failures, redefine the rubric to maintain or recapture its essence without losing sight of its normative and political implications, and ponder the future of arms control.

The authors have been asked to respond to the following questions: Do classic arms control ideas (still) make sense? Has arms control increased US security, and if so, why? How has the world changed since 1960? What should be the nature, goals, and means of arms control agreements in the future? The authors have also been asked to think about arms control not only as technical measures to avoid war, but also as a peace management technique—that is, as measures to ensure greater expected utility from peace. They have come up with ideas about incentives, alternative deterrence postures, new institutionalized forums of communication and consultation, regulation of peaceful competition, and the extension of arms control to the Third World.

* * *

Here I would like to develop some ideas about the future of arms control. My hopes for peaceful change are tempered by the constraints and challenges posed by the nature and scope of the structural changes now taking place in the international system and

by the national and transnational forces arising in Eastern and Central Europe and the Third World.

My initial thesis is that the existence of nuclear weapons was unable to bring about peaceful accommodation between East and West during the Cold War. How people thought about nuclear technology was equally important. Arms control practice emerged from the theories of a group of mostly American intellectuals—scientists and strategists—who shared a common view as to the causes of war, the effects of technology on the arms race, and the need for cooperation among nuclear adversaries. Reaching into the places where decisions were made and into the minds of the people who made them,² these intellectuals helped turn arms control ideas into a politically relevant and widely promoted national security issue, and ultimately into arms control policy. In time, the Soviets, acting in their own national interest, began negotiating with the Americans on the basis of this theory.

The idea of arms control took hold only after domestic political and socialization processes created a politically viable alternative to nuclear superiority and to total disarmament. These processes altered the superpowers' understanding of their national interest and hence, their actions. The intellectual and political emphasis on nuclear arms control during the last thirty years was not in vain then, because arms control forced the superpowers to invent ways to institutionalize their joint interest in avoiding war. By acting as a catalyst for learning how to promote conflict resolution in the nuclear age, arms control laid the foundations for US-Soviet cooperation and symbolized both the state of their relations and their progress toward avoiding nuclear war.

THE EVOLUTION OF NUCLEAR ARMS CONTROL: RATIONAL IDEAS AND THE POWER-POLITICS GAME

In the preface to the 1960 issue, Gerald Holton, distinguished scientist and then editor in chief of *Dædalus*, wrote that the only hope for avoiding nuclear war lay in an "enormously refined art and science of controlling war." Although arms control studies and negotiations had been conducted for over a decade, he noted, only late in 1959 had the whole field of study at last gone "beyond critical."³ Holton was referring to a loose community of experts who, for intellectual, ideological, and political reasons, had adopted the

arms control approach, despite their differences on national security issues, including arms control itself.

This community comprised two subgroups. For one group, of which Thomas Schelling was representative, the underlying causes of international conflict were technological change and the clash of national interests as states pursued their individual goals. They stressed the futility of disarmament and the dangers of misperception and crises that race out of control; for the foreseeable future, world stability would have to depend on the possession of nuclear weapons. The other group, under the intellectual guidance of Jerome Wiesner, believed that armaments themselves were a serious cause of international tension; hence, reducing weapons stocks would reduce tensions. But they also believed that the intensity of the grievance manifested in the Cold War required a transitional period during which peace must be guaranteed by nuclear deterrence.⁴ Although they preferred disarmament to limited arms control measures, the latter were seen as preferable to an unlimited and perilous nuclear arms race.

These two groups converged into a “community” because, despite their differences, they agreed about the short-term advantages and necessity of arms control; almost all members of each group conceded the validity of the recommendations of the other. As Wesley Posvar wrote at the time, “one might even question whether the term ‘schools’ as applied to these groups should be abandoned in favor of something like converging points of view.”⁵

Of course there were personal, career, and institutional conflicts within the community.⁶ Many of the arms controllers jealously guarded their own ideas and interpretations. But their discussions, arguments, and mutual criticism helped them shape a consensus of concepts, surmount interdisciplinary barriers, and create a common vocabulary.

The members of the community knew each other well: they frequently encountered one another on television and in roundtables and debates, were often colleagues at the same or nearby universities, and made regular use of each other’s written and oral presentations. Learning from one another, they together generated the criteria for checking the validity of their ideas and came to share expectations that set them apart from other experts. Yet “admission” to the arms control community was based not only on shared expectations but

also on an active dedication to “the cause,” collectively recognized expertise, and “the ability to come up with new proposals and arguments.”⁷

A few key civilian strategists in this community had been affiliated with the RAND Corporation. At RAND, they absorbed an engineering approach and the methodologies, models, and assumptions they used to articulate their ideas on arms control. Some prominent RAND strategists considered that the threat of a Soviet surprise attack mandated a redoubling of efforts to achieve military technological superiority, while others, including Schelling, Lewis Bohn, and Amron Katz, held that it required stabilizing mutual deterrence through technical arms control measures.

Schelling spent part of 1957 and 1958 at RAND, “where his work influenced, and was influenced by theorists such as Brodie, Daniel Ellsberg, Malcolm Hoag, Herman Kahn, Albert Wohlstetter and William Kaufmann.”⁸ Morton Halperin, then a graduate student at Yale, attracted Schelling’s attention and they decided to collaborate. Donald Brennan, another key member of this community in its early years, had spent nine years at the MIT Lincoln Laboratory; he came into direct contact with the RAND strategists, leading to an especially close relationship with Kahn, whom he joined at the Hudson Institute. (By 1964 Brennan became disenchanted with basing strategic stability on the control of defensive weapons and “defected” from the community. The feeling of betrayal felt by arms controllers suggests the strength of their sense of communal solidarity.) Strategists who had not passed through RAND, trained in a more classical and less behaviorist approach, also made a contribution.

The scientists who joined the ranks played an equally important role as the strategists. Trained mainly in physics and engineering, since the 1940s they had been involved in the government-sponsored development of weapons and other technological systems, such as air defense. They had been disenchanted by the failure of disarmament negotiations and pessimistic about technological solutions to the nuclear weapons predicament.

The scientists were the first to discuss arms control with policy makers. As members of the President’s Science Advisory Committee (PSAC) they had access to President Eisenhower, who gave support to “his” scientists. They also had firsthand experience with arms

control as active participants in the test-ban treaty talks, which were used as a proving ground for their ideas.⁹

Among the most prominent of these scientists were Wiesner, Herbert York, Isadore Rabi, Jerrold Zacharias, James Fisk, Bernard Feld, Paul Doty, George Kistiakowsky, Hans Bethe, Eugene Rabinowitch, Jack Ruina, George Rathjens, Spurgeon Keeny, Wolfgang Panofsky, Harvey Brooks, and James Killian (then president of MIT). That many of the scientists and a majority of the strategists were affiliated with either Harvard or MIT (and came to be known as the “Charles River gang”) was doubly significant. First, it allowed them to interact on a daily basis and exchange ideas formally or informally. Second, their institutional affiliation helped determine whether theorists got a hearing where it mattered most—at the White House, the Pentagon, and the State Department.¹⁰ Finally, the fact that many members of the community had access to classified information—through RAND, PSAC, or Pentagon research agencies—was important because it made them feel like “insiders” and provided them with reliable information.

The scientists saw their management of major national security projects as a model for organizing arms control. Wiesner, seeing no incentive for the development of special seismic detectors since they were not needed for the development of nuclear weapons and there was no bureaucracy or organization to create a political stake in them, spoke of the need “to create a vested interest in arms control, to develop a cadre of people whose full-time occupation is research and development on means of arms control and on the analysis of the political and military problems of arms control.”¹¹

The arms control community expected the outbreak of the next war to follow the pattern of World War I—caused by the failure of deterrence and crisis management and by the skewing of perceptions by the reciprocal fear of surprise attack.¹² Assuming that their lethal potential made nuclear weapons qualitatively different from conventional weapons, they expected that a nuclear war could not be won. But, they predicted, without measures to avoid it, such a war was likely. For this reason they put a premium on cooperation with the other side and worked to strengthen the nuclear “taboo.” The arms controllers foresaw no technological solution to the arms race. Nevertheless, they believed that technological advances would help stabilize the nuclear balance by increasing strategic invulnerability

and facilitating verification. Among their other assumptions and arguments: the bipolar international system would persist for the foreseeable future; arms control is an integral part of national security policy; arms control could include a variety of unilateral measures; in time, arms control might help to create a more peaceful political climate.

Arms control ideas were founded on the intellectuals' expectations of the future and reading of history, and on abstract models and logical inference (since there has never been a nuclear war, there is no nuclear war "database"). Hence, it is not surprising that the approach was challenged by anyone who advocated technological and military superiority, considered cooperation with the enemy to be detrimental to national security, and held that under favorable conditions a nuclear war could be fought and won. Much of the United States' war planning and weapons deployment was driven by this alternative viewpoint.

The arms control approach was fostered by a series of events, including RAND studies (by Albert Wohlstetter) on America's strategic vulnerability to surprise attack; the Soviets' tests of an intercontinental missile in August 1957; the launching of Sputnik, the first Soviet satellite, two months later; and the Gaither Committee's recommendations of an across-the-board military buildup, which alarmed President Eisenhower and made him more receptive to arms control ideas. The scientists who went to work for Eisenhower in 1957 as members of the PSAC made their arms control ideas known to the president. A Surprise Attack Conference and a conference on banning nuclear tests, both held in Geneva in 1958 (neither produced any agreements between the Americans and the Soviets) promoted consultation and socialization among strategists and scientists.

The "invention" of arms control had much to do with the evolution of American strategic thinking on nuclear deterrence, limited war, and escalation. The idea of nuclear arms control spurred the interest of the Eisenhower administration, but did not affect American policy until many members of the arms control community went to work for President Kennedy. Once on the inside, they promoted their arms control ideas, created public and private arms control institutions (or took over existing bureaucratic agencies), and persuaded key political actors, such as Defense Secretary Robert McNamara, who provided political support. They also generated the

technical knowledge needed to implement arms control agreements, helped think through the bargaining positions to be adopted by American negotiators, and contributed to the formulation of norms and rules. In addition, they studied and proposed means of verification, posttreaty reviews, and conditions for withdrawing from agreements. The arms controllers were instrumental in the burgeoning of arms control activities in university centers, think tanks, science academies, and professional associations; rallied public support for arms control; and helped persuade Congress of the value of specific arms control agreements.

Partly as a result of these activities, a series of bilateral and multilateral arms control treaties was signed, of which the most faithful to the original arms control concept was the 1972 Antiballistic Missile (ABM) Treaty. A more subtle but no less significant outcome, however, was that the habitual *practice* of arms control became rooted in the American political bureaucracy, media, and public opinion as a means of, or surrogate for, conflict resolution. The most subtle consequence of all, however, was the dissemination of arms control ideas and practice to the Soviet Union.

At first the Soviets went along with arms control because it fit their own peculiar notion of how best to promote their power and influence: strengthening détente and managing the political environment while simultaneously developing a full-fledged strategic force. At the same time, though, and even before the start of the SALT I negotiations, the Soviets—first scientists and intellectuals and then political leaders—began to absorb the rationale behind the control of ballistic defenses and became keenly motivated to avoid a defense race. Later, the American and Soviet negotiating positions on arms control diverged, but their practical understanding of the matter converged: the United States adopted a more political approach while the Soviets were drawn more and more to the American technical approach. By the end of the 1970s, Soviet leaders had moved beyond using arms control as a mechanism to thwart new American arms programs and had agreed to an arms control regime (SALT II) that promised predictability in the composition of the forces of both sides.¹³

When Gorbachev came to power, he moved boldly to the virtual repudiation of the rigid INF (intermediate-range nuclear forces) stance of his predecessors; his ideas “began to sound reminiscent of

the kind of stability and finite limit to nuclear procurement defined by . . . McNamara 20 years earlier as 'mutual assured destruction,'"¹⁴ This trend was assisted by a group of Soviet civilian strategists who had acquired their defense expertise in the West and now had direct access to power. Even senior Soviet military officers admitted that their new ideas of unacceptable damage could be traced back to McNamara.¹⁵ In this way, "Moscow's tacit aims converged with those of classic Western arms control. . . . All the deterrent verities about stability and assured second strike and the destabilizing, trigger-happy nature of the strategic defense that US arms controllers had preached in the '70s suddenly made a great deal more sense to the Soviets of the '80s."¹⁶

Once it was institutionalized in governmental practice, arms control was instrumental in reducing the likelihood of war by allowing the superpowers to discover the extent to which the symbolic content of the nuclear strategic game suggested compromises, limits, and regulations.¹⁷ The practice of arms control became a means for communicating through action the extent to which the superpowers had a common and complementary interest in mutual survival.

By helping to create, strengthen, and focus expectations of cooperation—that is, by instilling the political elites with confidence that cooperation was the best route both to enhance national security and to prevent war—arms control may have helped foster a common understanding that the nuclear situation could be stabilized by human choice. Thus, the importance of the arms control agreements of the last three decades lies not in the limitation of weapons per se or of military expenditures, nor even in the political implications of arms control in any general sense, but in the fact that they demonstrated to both sides that intermediate goals were being achieved and that progress toward avoiding nuclear war, however minimal, was being made. But because arms control also created recurrent high expectations followed by disappointment with its more superficial, material, and quantitative achievements, expectations of cooperation have fluctuated dramatically between artificial and imaginary highs and lows.

Thirty years after the original *Dædalus* arms control issue, we face new challenges and opportunities for international security, but are endowed with institutions that embody real technical, diplomatic,

and political knowledge about negotiating agreements, increasing transparency and reducing uncertainty, verifying noncompliance, communicating one another's doctrines and fears, and applying lessons learned from one agreement to the next. Furthermore, the practice of arms control has helped disseminate and strengthen a set of norms and rules about such things as reciprocity, not being the first to use nuclear weapons, and the termination of agreements, as well as given us experience in applying these norms and rules, which facilitate mutually contingent rational choice, to specific arms control agreements.

THE FUTURE OF ARMS CONTROL: STABILITY AND TRANSFORMATION

The world changed while this issue was being assembled. The revolutions of 1989 in Eastern and Central Europe, the collapse of the Soviet empire and the de facto dissolution of the Warsaw Pact, US retrenchment, the reunification of Germany, the spread of liberal democratic values across the world, and the potential for a united Europe are events of major historical import. Historians of future ages may view this period as one of those rare moments—such as 1648 (the Peace of Westphalia), 1815 (the Concert of Europe), and 1945 (the postwar order and the nuclear age)—when those great transformations in international relations that have the quality of a *longue durée*—“not simply . . . lasting a long time, but . . . ‘having the structure of a system’ ”¹⁸—take place.¹⁹

Transformations that are of political *longue durée* are characterized not only by changes in the stratification of power, but also by a break with old ways of understanding the world, old practices, values, and expectations—more generally, with old conceptions of political order. What appears to be a transformation of this magnitude may yet turn out to be mirage; history and the future, which are open-ended, are being made now. Still, these recent changes constitute the background of one possible world of arms control—fraught with opportunities and dangers—that may now face Europe, the United States, and other developed countries.

Probably of less historical importance, but still a momentous event, is Saddam Hussein's reminder that “whatever happens in Europe itself, dangerous things can happen to the south and east of Eu-

rope.”²⁰ For there is “the world,” and then there is the Third World, which has not been turned off by the idea of war (or to borrow Michael Howard’s term, has not yet been “debelled”)²¹ to the extent that material and ideological forces have done so in the First and Second Worlds.²² In this—the other world of arms control—crisis instability, interstate war, intercommunal conflict, and great power intervention are rampant.

Looking at the challenges facing the superpowers, Germany, other West European powers, and Eastern and Central Europe, one can only be pessimistic about change and the future of arms control. The new democracies in Eastern Europe are weak and have yet to begin solving their major economic, social, and ethnic problems, which hinder social consensus and national integration. Inflation, unemployment, and xenophobic nationalism may doom their experiment; once again it will likely be rivalries among peoples and communities, rather than states, that will determine their fate.

We are already witness to domestic unrest and challenges to central authority in the Soviet Union. Should this pattern become widespread, it could lead to a change in the Soviet leadership and even to military intervention and aggression, with broad implications for the West. Reunited Germany is an unknown quantity, and honest differences exist as to whether Germany has overcome its notorious past. But even if Germany opts for the security of the European Community, irredentist conflicts in Eastern Europe could lead it to intervene to protect its interests in that region.

The recent 2 plus 4 Agreement, which settled the “German question” and Germany’s borders, and the remarkable new cooperation between the United States and the Soviet Union may signal, however, that a major, peaceful transformation is in the offing. As these lines are being written, we cannot know whether peaceful change is creating a new European order; the answer may not be clear for years to come. But if forty years of postwar European history have anything to teach us, increasingly shared economic and political values—most notably democracy and economic stability—could lead to the development of a “pluralistic security community” stretching from the Pacific eastward to the Urals.

A pluralistic security community is integrated to the point that its units entertain “dependable expectations of peaceful change”;²³ the individual governments within the community together compose an

“informal government to ensure peaceful change without subordinating all the differences in values, culture, and the like that make the separate units distinctively free and independent.”²⁴ There are two preconditions for the creation of such a community: compatibility of central political values derived from common political institutions, and communication that reflects a “we-feeling” among its members.²⁵ One of the most important values is democracy, because it seems to inhibit nation-states from using force against one another.²⁶

Western Europe is already close to a pluralistic security community; it has extricated itself from the cycle of war, and its component nations generally do not suspect their neighbors of aggressive intentions. True, some of the recent changes in Europe, such as German reunification, are testing the expectations of peace. But the pluralistic security community in Western Europe may survive because it offers a compromise between those who seek total political amalgamation and those who wish to preserve full nation-state sovereignty.

In the longer run—within a decade or two—a pluralistic security community stretching from San Diego to Sverdlovsk may be encouraged by the increasing unattractiveness and implausibility of interstate war in that region, and the increasing penetration of Central and Eastern Europe by the basic political and economic values of the West. For the United States, such a community may offer the best way to maintain a foothold in Europe and preserve its security interests there.

In a pluralistic security community, security can be only “common security”: in the nuclear age nation-states can no longer ensure their security by the traditional methods of national defense; they must henceforth take into account the security of other peoples and states as well. In short, “one can no longer be secure from one another, but only with one another.”²⁷ Thanks to common security, nation-states can confront common economic and environmental problems more or less free from security dilemmas among themselves, thus permitting increased cooperation and the coordination of larger security policies.

Arms control may facilitate the development of a pluralistic security community and a common security regime by using its practices, negotiating techniques, and technical knowledge to facilitate a reduction in the arsenals that are no longer needed to fight nuclear and conventional wars in Europe that never materialized.

The most important contribution that arms control can make to the development of a pluralistic security community and a common security regime, however, is a means to negotiate the community's military and institutional structures and procedures. Community members must decide what their armies will be needed for in the future, how they should be structured and deployed, and against what types of threats. They will have to create security arrangements and conflict-resolution mechanisms to deal with security problems within the community, for example, among ethnic and national groups, and with organized violence originating outside the community, including international terrorism.

A pluralistic security community offers the best hope of avoiding nuclear war; but nuclear arms control still has an important role to play on the path from the present situation to the inauguration of a security community. The most pressing problem regarding nuclear weapons may not be whether Germany will have them—it recently signed a treaty committing itself not to, although this situation may change in the long run—and may not necessarily arise from the “old-style” threat of a Soviet surprise attack. Rather, in light of the disintegration of the Soviet Union, one of the “most pressing nuclear proliferation problems of the 1990s may not be, as is widely assumed, that more states will acquire nuclear weapons. It may turn out that *nuclear* weapons will acquire more states.”²⁸ For the first time in history a nuclear empire is breaking up, raising questions of command and control, nuclear proliferation, and perhaps even nuclear civil war. Tightening command and control is crucial today; but a time may come when ex-Soviet republics will have to negotiate nuclear arms control agreements with other European states and among themselves.

Even if the Soviet Union manages to overcome this problem, the experience of the last forty years teaches us that a future pluralistic security community should not entirely discard nuclear weapons. It should, however, aspire to a minimum deterrence capability, adequate to deter states outside the community and guard against long-term changes within the community. The two superpowers will have to abandon counterforce doctrines and targeting, adapt a no-first-use doctrine, and move “away from vulnerable . . . fixed MIRVed land-based missiles developing a ‘modest’ arsenal of single-warhead weapons of low yield and high accuracy.”²⁹

The concept of minimum deterrence has been severely criticized. But there are good reasons why it should continue to be a goal. The recent changes in Europe have given the West a level of security that did not exist before, making minimum deterrence more believable. Also, minimum deterrence need not rely on targeting urban centers only, but all targets, urban and *military*, so that military infrastructure and organization would be destroyed.³⁰ In the final analysis, however, minimum deterrence is now possible because stability has come to depend not only on the threat of nuclear attack, but also on a shared preference for peace over war, which is not affected by better odds of winning a war.³¹

When it comes to exploiting conventional-weapons control for the establishment of a broad pluralistic security community, history is now moving too fast for arms control as we know it to keep up with events. Eventually, however, history will slow down; and the deeper the bonds among future community members, the easier will it be to agree quickly about conventional arms reductions and verification. The arms control community has a new intellectual challenge: adapting arms control practice and negotiating methods to a situation far more dynamic than the Cold War ever was.

The other world of arms control lies in the South, where religious and socioeconomic pressures, revolutionary nationalism, modernization, ethnic conflicts, and border disputes are compounded by the increasing ease with which nuclear, chemical, and missile technologies can be transferred to, or developed by, Third World countries. The problem is not one of right, that is, whether Third World countries have the right to purchase or develop the same types of weapons of mass destruction that other states possess. The problem, rather, is how to safeguard global security against the combination of bellicose behavior and access to weapons of mass destruction. Even as the North seems to be moving away from major interstate war as a practical instrument of foreign policy, the South, living in despair, may still be willing to hazard its future on the sword, even the nuclear or chemical sword. The Iraqi invasion of Kuwait clearly shows how a regional conflict may turn into a global security problem and how, during the coming decades, a passive or active confrontation between the Muslim and Judeo-Christian civilizations may imperil global security.

Despite the fact that some regional conflicts—given their nature and intensity, a lack of common interests among the combatants, and other socioeconomic and ideological factors—may not be amenable to arms control agreements, arms control is applicable to parts of the Third World. We should remember that thirty years ago there were low expectations of arms control agreements between the superpowers; that is no longer the case. Similarly, structural, technological, economic, political, and cultural factors may generate an interest in arms control in the Third World.

It can be argued that as Third World countries become more interdependent both among themselves and with the developed countries while continuing to acquire weapons of mass destruction, their common interest in mutual survival will grow, and arms control will be able to step in to play an instrumental role. Other factors that may promote arms control in the Third World are domestic political reforms such as democratization, regional and global changes in the distribution of power, concerted superpower action to settle regional disputes, and acute crises that must be resolved without undue delay.

For example, the combination of the change in the global distribution of power due to the end of the Cold War, superpower cooperation to find peaceful solutions to Middle East conflicts, the accumulation of weapons of mass destruction by several Middle East states, and the recent Gulf crisis may all lead to the application of arms control in the Middle East. Should Israel and Syria agree on an Israeli withdrawal from all or part of the Golan Heights, there will be a need for accords dealing with demilitarization, mobilization and military exercises, and verification, as well as confidence-building measures. If the Palestinian problem is one day discussed around a conference table, arms control agreements may have an important role and become an Israeli precondition for some kind of Palestinian autonomy or independence. Even in the case of Iraq and the Gulf, a settlement of the current crisis (without, or after, a war) may involve conventional and nonconventional arms control measures.

Even while we strive to alleviate political grievances, it is imperative to disseminate the lessons of thirty years of arms control practice and confidence-building measures to the Third World. Leaving aside all the failures of superpower arms control, a large body of technical, political, and diplomatic expertise has been accumulated on verification, confidence building, and crisis stability, all of which could be

put to good use in the Third World. For example, "arms control negotiations can open important lines of communication between polarized adversaries, perhaps providing the only opportunity for the leaders to meet and discuss mutual antagonisms."³² Michael Klare has suggested, for example, that something like the Helsinki and Stockholm agreements on prior notification and observation of troop exercises and movements is applicable to India and Pakistan. He also suggests creating a United Nations monitoring agency, using available satellite technology, which could compensate for Third World countries' lack of "national technical means."³³ The end of the Cold War may also affect the pattern of regional competition and spread of nuclear weapons. A large reduction of their nuclear forces by the superpowers may, at least in principle, have a salutary effect on nuclear proliferation. On the other hand, the number of undeclared nuclear states has grown. Another problem is the open and clandestine sales of nuclear equipment to the Third World by private firms in developed countries. The so-called "second-tier" nuclear suppliers also pose a problem.

The Nonproliferation Treaty seems inadequate to deal with the changing nature of proliferation, especially as nuclear and chemical issues are linked by Third World elites. The prevention of nuclear proliferation should continue to be a priority, although the definition of a "nuclear state" should be revised to catch the undeclared nuclear states in its net. A useful nonproliferation approach may be that of "nuclear weapon free zones," such as that inaugurated for Latin America in 1967 at Tlatelolco.

The Latin American case is instructive because the Tlatelolco Treaty has not been fully ratified, and Argentina and Brazil, which have competed in the nuclear field for the last forty years, may soon have the technological capability to produce nuclear weapons. All the same, these two countries cooperate extensively on nuclear issues; factors other than the balance of power and multilateral treaties are at work there to contain nuclear proliferation. The nuclear taboo is relatively strong in Latin America. This case exemplifies what Schelling has called the "most important 'arms control' that we have had," namely, the belief "that nuclear weapons are in a class apart from conventional weapons. They are under a curse, a taboo, despite the awe in which they are held and the prestige that may go with having them."³⁴

An even more elusive goal may be creating a strong norm against the use of chemical weapons and banning their production and use in the Third World. It has not gone unnoticed that their recent uses have had apparently clear-cut military results. As long as nonnuclear Third World states continue to compete with nuclear states, their argument that chemical weapons are the "poor nation's nuclear bomb" will remain strong. But even if the future of chemical weapons control is somber, much can still be done to curtail their spread by clamping down on illicit supplies of chemicals by private firms in the developed world.

Arms control may also be of little help in dealing with intercommunal violence (particularly in the Third World and Eastern and Central Europe), where security may no longer be guaranteed by the state and the very question of national sovereignty is at stake. (Arms control, as we know it, is an outgrowth of the Westphalian international order.) But the methods of conventional arms control might be useful should *states work together* to reduce or eliminate patterns of transnational community violence.

This short incursion into the two worlds of arms control shows that those who have written the epitaph to arms control are wrong. The practice of arms control will not erode, whatever the obstacles; in fact, if adapted to changed circumstances, it may endure, like diplomacy, as long as the threat of devastating war has not been eliminated from man's nightmares.

In the future, however, arms control will have to do more than deal with "all the forms of military cooperation between potential enemies in the interest of reducing the likelihood of war, its scope and violence, if it occurs, and the political and economic costs of being prepared for it."³⁵ First, among *former* enemies, arms control can become a means for transforming the political and international order. Second, in regional conflicts, arms control can help reduce security dilemmas and thereby promote stability and negotiated agreements. Third, arms control can continue to do what the original formulation of its goals overlooked, namely, the communication of expectations, historical experience, strategic concepts and doctrines, and fears, and the diffusion of norms—foremost among which is the taboo on the first use of nuclear weapons.

We have thus come full circle and returned to the role of ideas in world politics. During the first chapter of the nuclear age we have

been able to take a few steps back from the abyss; arms control has been one of the tools that has kept us from falling over the edge. The development of arms control ideas and practice allowed nation-states to share expectations of proper action and to rationally calculate their choices according to a common understanding of the situation. International cooperation during the last thirty years has depended on the shared concepts and expectations that arms control has helped to provide. If we are to keep away from the abyss in the future, we must do more than just junk some of our tanks and bombs; our collective understanding, practices of government, and norms must continue to evolve.

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The Thirtieth Year

WHEN EMANUEL ADLER BROACHED THE IDEA of a thirtieth-anniversary volume to commemorate the historic conference and volume of 1960, and to use the occasion to examine what has happened to arms control during those thirty years, none among us had any idea that the thirtieth year that was about to begin would be the most eventful by far of all the thirty. And had we engaged in guessing what might possibly occur that could make it the most eventful year, we could not have guessed anything like what did happen and would surely not have guessed that anything so momentous could also be so good. Holding off disaster was what most of us aimed for in 1960 and by the end of 1989, disaster—at least, the kind of disaster we worried about in *Dædalus*—seemed remote.

I originally intended to examine whether arms control, or a military strategy informed by arms control, had played a significant part in staving off disaster and deserved any of the credit. That is still an interesting question historically, but its policy significance may have flown. A few years ago I published an essay, “What Went Wrong with Arms Control?”¹ arguing that arms control had gone off the tracks. I was concerned to get it back on the tracks. But now maybe we can just let it rest on a siding.

It won’t rest there of course. Now that we need it less we can probably have more. Or I should say that now that we do not appear to need arms control to stave off disaster, we can use arms control for other purposes. I used to consider it important to emphasize that arms control would not necessarily reduce military expenditures. I

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thought it good to emphasize that arms control might more usefully concern itself with restructuring weaponry, not simply reducing it. But suddenly we can talk about reductions that promise sizable savings. The promise may not be kept, or at least not promptly; the “Vietnam dividend” check that we once thought was in the mail never arrived. But it is for the first time a legitimate hope.

Maybe it is time to revise our language. Some of us still remember the ideological disputes over the terms “arms control” and “disarmament.” Donald G. Brennan in his editor’s preface to *Arms Control, Disarmament, and National Security* had to warn against the “false dichotomy” of “disarmament *versus* arms control.” He said, “The point of view of this book (as with most students of these affairs) is that ‘arms control’ is a generic term that includes the possibility of literal ‘disarmament’ among other possible cases.” He went on to say that a few writers held that “arms control” was a “distinctly wicked doctrine,” and that those who advocated it in contrast to disarmament were made to appear as immoral proponents of the continuation of the arms race.²

Brennan was clearly smarting. He evidently felt that the “disarmers” occupied the moral high ground and he needed to defend his own authors. I remember a number of occasions when accusations were vituperative, but I think the antagonism had peaked about the time the book appeared. It was clearly the “arms controllers’” doctrine that conquered the Kennedy Administration, and Brennan’s somewhat intemperate counterattack was probably unnecessary by the time it was in print.

The dispute over terminology, like the dispute over substance, was not purely domestic. The *Dædalus* Conference occurred when General and Complete Disarmament (GCD) was every government’s stated goal, especially the Soviet Union’s. At the Pugwash Conference in Moscow at the end of 1960 the Soviet delegation refused to countenance the idea of “arms control”; at one point it was ready to have a show of hands on whether anybody present who did not subscribe to GCD should not be asked to leave the conference and go home. (“Home” was not the Moscow suburbs.) That was also the era when the United States was known for its insistence on verification; the Soviets, said to have no words in their language for what Americans meant by arms control, interpreted arms control, sincerely or not, as if it meant only inspection. (Someone pointed out that this

interpretation of the word might have been based on the French term *contrôle*.)

I think the doctrinal victory of arms control in this country culminated in the Antiballistic Missile (ABM) Treaty; SALT, START, and INF are more in the tradition of literal disarmament. Arms control now will almost certainly take the form of reductions. If the reductions tend to be proportionate across weapons systems I will find them intellectually displeasing but in no way alarming.

Other essays in this volume look at whether the burst of intellectual creativity on arms control thirty years ago had an impact on policy, whether such impact made any difference in avoiding war, easing tensions, or the progress of freedom and democracy. In my judgment, policy was influenced by those ideas during the Kennedy, Johnson, and Nixon administrations; the ABM Treaty was a tangible result; the effect on peace and progress was clearly positive, but it is hard to assess any ultimate significance. That stated, I wish to address the question whether ideas generated in the late fifties and early sixties, having served their purpose, can now happily be declared a part of history, essentially obsolete. Or, do they remain, with some modifications, potentially pertinent to the new world that is today emerging?

To pursue that question I need to identify, however briefly, those ideas that characterized arms control thinking. Each of us who participated in developing the doctrine will have his or her own perspective on the matter, differing in emphasis. I do not pretend to be a spokesman for the dozens of people, both in America and abroad, who participated in the process.

Perhaps the most important characteristic of arms control thinking some thirty years ago is that many among us, perhaps the greatest number, did not consider ourselves to be "arms controllers." If asked to characterize ourselves professionally, only a few would have said they were primarily interested in arms control; a much larger number would have professed an interest in nuclear weapons policy; many would have identified their interests as foreign policy and national security. Most of us believed that there was no contradiction between an interest in military strategy and an interest in the possibility of collaborating with potential enemies to reduce the likelihood of a war that neither side wanted. There was a notable absence of antimilitary spirit. Indeed, many of the ideas that came to be identified as

expressing the “arms control” point of view were pertinent to the unilateral shaping of nuclear forces; others had to do with negotiations with potential enemies on the size and structure of military forces. Interest in what might be done reciprocally, between East and West, specifically between the Soviet Union and the United States, was never confined to propositions that might be embodied in formal agreements.

A concrete manifestation of this was taking for granted the idea that nuclear deterrence was here to stay for the foreseeable future; the purpose of arms control was to help make certain that deterrence worked. What people sought to develop intellectually was a theory of deterrence, quite as much as a theory of arms control. A central problem in deterrence was that nuclear weaponry, if inappropriately structured, or structured in certain ways, could yield a tremendous advantage to striking first. Some argued that having a better first-strike capability might be a dangerous thing at a time of crisis, where the adversary might think to use that advantage.

Deterrence was not a theory ushered in by the advent of nuclear weapons. National governments throughout history have undoubtedly been deterred from military attack and attempted conquest by the possibility of military defeat or the prospect of a war too costly to make even victory seem attractive. One of the things brought by nuclear weapons was the prospect of terrible civilian damage being inflicted, independently of what occurred on the battlefield; it would all happen in one unconstrained burst of violence.

That is something most modern military forces have been unable to do in the absence of nuclear weapons. Iraq and Iran imposed immense, tragic, and unproductive damage on each other during their eight-year war, but most of the damage was limited to the battlefield. They were able to inflict military casualties in the tens or hundreds of thousands each year, but not civilian casualties in the millions overnight.

Now, to return to the question, what continued role, if any, is there for the kind of thinking associated with the *Dædalus* volume of three decades ago? One easy answer is that while nuclear deterrence is likely to carry less responsibility for preserving peace in the decade or decades to come, the United States, without any doubt, will wish to maintain a massive nuclear retaliatory force, an expensive one, and it is just as well to choose the right kind. While it may now matter less,

to have survivable forces with secure command and control makes sense. If some of our strategic nuclear forces are to be retired, with others maintained or even modernized, it is reasonable to maintain and, if necessary, to modernize those that are most secure, letting the others go. The submarine-based forces will head the list for retention; ground-based missile forces will probably be the first to go. Cutting proportionately would be mindless. Militarily, it may not make much difference in the near future: Still, mindlessness in the design of our strategic nuclear forces is not a good habit. Whatever welcome decommissioning of strategic nuclear systems may occur in the area we now call the Soviet Union, strategic nuclear forces will remain; they will continue to constitute the major preoccupation in the design of our own opposing forces.

For the purpose of negotiated arms reductions, the most important changes in objectives and constraints will occur on the Soviet side. The deployment of nuclear weapons and the devolution of their command and control will certainly be dramatically influenced by the disintegration of centralized Soviet authority. Essential to the idea of arms control is the proposition that, in the matter of strategic nuclear weaponry, we and the Soviet Union have many interests in common. In nothing do we have more of a common interest than in the Soviets' maintaining centralized secure custody and command over their strategic nuclear systems. There may be nothing we can do to help achieve this, but we can certainly share their concern.

What other applications may there be for the kind of arms control ideas celebrated in this thirtieth-anniversary volume? There is one problem for which those ideas offer very little help—how to think about the future nuclear status of a united Germany, finally severed from World War II. German nuclear aspirations peaked during the Kennedy administration and after that a *de facto* participation appeared to suffice. There has been a remarkable silence or lack of interest in the implications of the events of 1989–1990 in Eastern Europe for French and British nuclear forces. Whether a unified and fully sovereign Germany will consider itself blessed, as Japan perhaps does, by the benefits of self-denial in nuclear weapons, or will one day find military or diplomatic reasons for preferring a change of status, especially if American forces are withdrawn in substantial numbers from Germany in the coming years, I cannot guess. This is a political,

diplomatic, and military issue on which the arms control tradition of the past thirty years has little or nothing to contribute.

A problem more likely to emerge within the coming decade is the acquisition of nuclear weapons, probably in small numbers, by nations unfriendly, or potentially unfriendly, to the United States. Iraq was a popular suspect in this regard even before the invasion of Kuwait. Here two quite different questions arise: What are the implications for the region? What are the implications for the United States?

Evidently, there is no possibility of a disabling attack by any such country against the American strategic nuclear forces. The central concern in the Soviet-American nuclear relationship is virtually nonexistent in the case of the comparatively minuscule nuclear capability of a country like Iraq. But Iraq, of course, would have that concern: if its nuclear weapons can be located and targeted, several nations might not hesitate to attack those weapons, presumably even with conventional weapons. Everything that the arms control literature of the earlier *Dædalus* era had to say about the vulnerability of nuclear retaliatory forces should have appeal to Iraq.

But there would be a major difference. For American nuclear weapons to be capable of delivery in devastating numbers to the Soviet homeland always required large, expensive, high-technology delivery systems: aircraft on bomber bases, missiles in underground silos, submarines home based at major naval installations, and aircraft carriers. These weapons systems were designed for the execution of large-scale coordinated attacks on complex target systems. For a country like Iraq, delivery of even a few nuclear weapons to the North American continent would be an altogether different enterprise. Delivery would have to be clandestine. The weapons would probably be positioned in advance so that there would be no need for them to be delivered at the time of the event; they could then be detonated by remote control.

That sounds very similar to what we would expect of a terrorist organization possessing a few nuclear weapons. In either case, the threatening government or organization would need to prove, or at least demonstrate that it had such a weapon, could deliver it, or had already delivered it. That would not be at all difficult if the supply were large enough to afford the explosion of one for demonstration.

Would a government like Iraq have interests that could be served by the threat of a nuclear explosion in, say, the harbor of an East Coast city? One can imagine a great variety of extortionate demands, but the demands I find most plausible would relate to US military participation in the Middle East region.

An example I have sometimes used is the American decision to resupply the Israeli forces during the 1973 war. Refueling stops in the Azores were critically important; Portugal was the only European country willing to allow such refueling. Had any Arab government possessed a nuclear weapon that it could publicly and persuasively threaten to detonate on the airfield, the threat would have needed to work in only one of three different ways: the US government might have been deterred from continued use of the base; the Portuguese government might have been deterred from allowing the continued use of that base; or residents of the Azores, including men and women responsible for the operation of the base, might have been induced to strike. Voicing the threat would have alerted the defenses of the Azores, but if the weapons had already been transported, perhaps by ship, so that all that remained was remote detonation, alerted defenses might have provided no great assurance.

An article like this, continually rewritten from the fall of 1989 to the fall of 1990, may easily be out-of-date by the time it reaches print. I leave it to the reader to imagine what use Iraq might have made of a few nuclear weapons had it actually possessed such weapons during the last weeks of July 1990.

In the Azores example, we have to consider what government—Syria, Egypt, Libya—might have been willing to take responsibility for threatening or actually using a weapon on the Azores base. The fact that the target would have been military might have preserved the government from facing retaliation in kind. Anonymously providing the weapons to a Palestinian terrorist organization, or, more safely, keeping control of the weapons and letting the Palestinians go public with the threat, might have frustrated counterthreats or actual retaliation. In something like the current crisis, even if the threats came from an anonymous or a purely terrorist source, there would probably be no hesitancy in identifying Iraq as the appropriate target for counterthreats and retaliation.

What kinds of arms negotiations might a government like Iraq be induced to engage in out of a common interest to avert the use of

nuclear weapons? I can think of none, unless it were negotiation on terms for ending a war against the United States and its regional allies.

The role I can see for arms control in such a situation might be an adjunct to the Nuclear Nonproliferation Treaty. Some group of nations, including at least the United States and what remains of the USSR, might attempt to proscribe the use of nuclear weapons by committing themselves in advance to some drastic response, including, at a minimum, an immediate declaration of war against whichever state used nuclear weapons. Whether, for constitutional reasons, the United States government would then have to rely on the somewhat ambiguous language of the NATO treaty about treating an attack on specified other countries as an attack on the United States, and whether that would be persuasive, I do not know. Perhaps a joint resolution of Congress, of intent to declare war, while consultative arrangements were set up among the participants in this venture for contingency planning and the pooling of intelligence, would be enough to be taken seriously. Some years ago, Alton Frye proposed a policy to allow the victim of any first use of nuclear weapons regionally to be instantly provided with equivalent weapons, to be used in return. Whether or not that is the best way to proceed, it is a good point of departure.

Some such "arms control" activity would not preclude planning also, less publicly, for the more ambitious objective of seeing that no nuclear weapons programs come to fruition in the first place. Public intentions along these lines are more awkward because they probably imply some sort of discrimination. A threat against "first use" of nuclear weapons could easily include Israel, South Africa, India, and Pakistan as subjects; peacetime sabotage or attack on nuclear weapons facilities is certainly not something to which we can become publicly and indiscriminately committed.

It is not now thought that Iraq will have nuclear weapons within a period of time relevant to the current crisis in the Gulf. It does, however, have its much-publicized chemical weapons. There has been, as I write this, no policy declaration by any government on the intended response to an Iraqi introduction of chemical weapons in the event of war. The attitude of the US administration on the banning of chemical weapons has not positioned that administration very favorably for taking the lead in a joint declaration of several

governments on a common response to such an event. Having looked the other way when the victims were Iranian, we do not occupy a moral high ground for expressing excessive outrage when it is our own troops who may be the victims.

Any advance declaration would therefore have to accommodate at least three quite different objectives. First, it would try to dissuade Iraq from any use of chemical weapons. Second, it would need to prepare people in the United States and in the Middle East and, indeed, governments around the world, for what the United States might actually do in response to the use of chemical weapons. Third, it would need to consider the effect on the status of chemical weapons everywhere, taking into account expectations about their future use and usefulness.

It may be wrong to attempt to commit oneself in advance to a specific response. The response, in fact, may depend on the kind of war being waged, how it is progressing, the effectiveness of the Iraqi chemical weapons, the Iraqi choice of targets. The president may need to retain flexibility. Still, having failed to deter the conquest of Kuwait by not crafting a policy that would have prevented that aggression, and not communicating such a policy, it may be important not to fail in deterring the Iraqi use of chemical weapons by failing to communicate, in advance, a prepared response. This is indeed a difficult choice—one loaded with arms control significance.

It is easy to see what the best outcome would be. If Iraq uses chemical weapons and the United States and its allies decisively defeat Iraq using only conventional weapons, at not too great a cost in chemical casualties, chemical weapons will remain under a curse and the United States will have displayed exceptional leadership in declaring chemical weapons out of bounds. But that would depend on the chemical weapons not proving very effective, and on the president's resisting an overwhelming clamor to respond in kind.

I foresee a temptation to respond with battlefield nuclear weapons. I feel confident that this would be the military choice if the president deemed it essential to escalate from conventional weapons. Nuclear weapons are what the Army, Navy, and Air Force are trained to use, are best equipped to use; their effects in different kinds of weather and terrain are well understood. The military profession traditionally despises poison. If Iraqi forces use chemical weapons to great effect

there would be a strong temptation to respond with the kind of unconventional weapon that we know how to use best.

What significance does all this have for essential arms control? Something rarely recognized as arms control, but essential to it, was the understanding, nurtured through years of unilateral declarations and planning, that NATO and the Warsaw Pact, in the event of war in Europe, would do everything possible to keep nuclear weapons out of that war. In the early 1960s it was the United States, almost alone, that carried the banner for a conventional defense. The Soviet Union disparaged the idea that there could be a war in Europe that did not automatically escalate to the highest nuclear level. While denying that possibility officially, the Soviet Union prepared for it, investing hugely, as did NATO, in weaponry that made no sense if war in Europe was bound to go nuclear.

Had there been a treaty obliging both sides to make large expenditures on conventional forces to prevent the necessity of introducing nuclear weapons at the outset, it is hard to imagine a greater compliance with such an imagined treaty than what in fact took place. This was not “passive” arms control; for a long time, it “denied” arms control. The control was not against the possession of weapons but against their use, a control exercised mainly through the immensely expensive procurement and deployment of the kind of military forces that made no sense unless both sides shared an appreciation that the war need not go nuclear.

Something not treated as arms control in the original *Dædalus*, but reflected in the volume—and the volume itself may have been one of thousands of small contributions to bringing this particular arms control into effect—was the powerful, universal conviction that nuclear weapons were utterly different from “conventional” weapons, a conviction undoubtedly shared even by those throughout the period who chose to disparage the idea. Nuclear weapons have been under a curse, a taboo. The victims of Hiroshima and Nagasaki contributed to the horror that made nuclear weapons, not for reasons of physics and chemistry, but for reasons of psychology, tradition, and shared expectation, different from all other weapons.

By 1960, that was all taken for granted. The adjective “nuclear” was implicit in the title of the volume. Even the few references to conventional weapons and their control rested upon that distinction; indeed, the very word “conventional” makes the distinction. Such a

tradition is probably strengthened every time it is conspicuously observed, and our *Dædalus* volume conspicuously observed it.

Lyndon Johnson, speaking about the use of nuclear weapons in Vietnam said, "For nineteen peril-filled years no nation has loosed the atom against another. To do so now is a political decision of the highest order."³ Those nineteen years were a good part of the reason for the awe in which he entertained any decision on their possible use. The nineteen years have now stretched to forty-five. It is an awesome tradition. We can be thankful, though not altogether secure.

This is what we put at risk if we venture to use nuclear weapons against Iraqi forces. If the Falklands battle had come in the nineties rather than the eighties, and if American forces had used nuclear weapons, however few and however carefully in Iraq, I doubt whether Margaret Thatcher would have resisted the temptation to use similar nuclear weapons against Argentine forces.

If the tradition of nonuse is shattered, it is important to consider what new traditions will be launched. The way in which the weapons are used will set precedents for wars in which nuclear weapons will no longer be excluded.

It is possible that we needed a shared understanding about nuclear weapons with the Soviet Union because of the horrendous danger to both sides in Europe, not to speak of the danger of escalation to full-scale intercontinental war. If that danger has now substantially receded, it may matter somewhat less whether or not we continue to preserve that valuable tradition.

Because I consider it likely, in the event of war with Iraq, that battlefield nuclear weapons will in fact be on the president's agenda, I hope that he is thinking in advance about that decision, weighing in the balance the implications of such a decision on the use and control of nuclear weapons in the next forty-five years.

ENDNOTES

¹Thomas C. Schelling, "What Went Wrong with Arms Control?", *Foreign Affairs* 64 (2) (Winter 1985-1986): 219-33.

²Donald G. Brennan, ed., *Arms Control, Disarmament, and National Security* (New York: Braziller, 1961), 9-10.

³*New York Times*, 8 September 1964, 18.

What, then, are the goals that armament is intended to serve? The first answer to this question is seemingly easy: it is simply survival—national survival at the level of the nation, personal survival at the level of the individual. But it is possible to distinguish different kinds of survival—physical survival, political survival, survival of a standard of living. The significance of such distinctions is that different armament policies would support some kinds of survival without necessarily supporting others. For example, some people believe that a policy of complete unilateral disarmament and non-resistance would possibly support sheer physical survival. Even if true, this policy would surely be unlikely to support political survival, and still less likely to support the survival of our standard of living. (I am here speaking of the possibility of another nation making large demands on our economic output or other resources, and not about the problem of internal adjustments to disarmament.) On the other hand, modern weapons are so impressive that a strong “Fortress America” armament policy would probably support national survival in all three senses, but might fail to support other national goals and purposes.

Donald G. Brennan

From “Setting and Goals of Arms Control”

Dædalus, Fall 1960: pages 681–82.

Arms Control: 1960, 1990, 2020

IN LOOKING BACK OVER THE THREE DECADES since arms control was codified in the nuclear age,¹ it is clear that, both in concept and in practice, it has become a central feature of the military and political landscape. Nevertheless, it remains a conception in the service of policy, not an end in itself. As a concept it developed in two ways. One path has been theoretical, in that it refined and further developed the view that arms control embraces “all the forms of military cooperation between potential enemies in the interest of reducing the likelihood of war, its scope and violence if it occurs, and the political and economic costs of being prepared for it.”² The archetype of this approach has been the Antiballistic Missile Treaty of 1972, which has met all three of the above criteria.³ At the strategic nuclear level, “reducing the likelihood of war” evolved into the concept of increasing “stability” by making a first strike not worth the risk in times of crisis or to a potential aggressor.

The other path taken has been one focused on restraining the arms race in various ways, especially through negotiation of numerical limits on weaponry. SALT I and the unratified SALT II, as well as the draft START Treaty, illustrate this approach which is quantitative, often incremental, and essentially pragmatic in nature: it aims at addressing the above criteria by assuming that fewer weapons will reduce the incentive to resort to their use in times of crisis or war, in the limit of extreme reductions it would diminish the “scope and violence if war occurs,” and it would reduce costs in some degree. This approach has been criticized by some arms controllers⁴ who believe that mindless reductions could be destabilizing and the

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negotiations can become so prolonged as to become irrelevant. When valid, such criticisms hit home, but agreements that avoid these pitfalls are reachable and, in a succession of steps, could bring the "action-reaction" competition, which has led to such excesses in armaments, under control and thereby meet the original criteria. In actual practice negotiations have been dominated by this latter course and this seems destined to continue as conventional arms control, requiring much greater quantification, gets underway. Hence, despite occasional fissures in the arms control world, both approaches are by usage and public support part and parcel of arms control.

Each of these approaches begs the question of the extent to which they have succeeded. Against what could be imagined, they have fallen far short. But since nuclear war has been avoided and substantial reductions are underway, they have contributed to this beneficial outcome. This approach traps us in the wrong question; arms control is not an end in itself with a scorecard to be kept updated.

A more useful perspective arises if arms control is viewed simply as an instrument of policy affecting military deployments and developments between or among adversaries. Inevitably, such national policies would have their roots in the recognition that by 1960 the nuclear arsenals on both sides could grow to such extents that their use would be suicidal and that the critical role of a nuclear-capable military force had changed from winning wars to avoiding wars. To the extent that communications and diplomacy permit, rational actors will seek the traditional goals of arms control by whatever combination of unilateral or negotiated measures that seem likely to succeed without sacrificing central national interests. Clearly, the perception of common interests and the possibility of shared benefits will enlarge the arena of possibilities to be explored. Viewed in this way, arms control becomes the handmaiden to larger, broader policies and strategies that combine the avoidance of war with national purpose. In this way attention is transferred from judging the intrinsic merit of cooperative measures, reduction schedules, or modernization restraints to the use of such measures as aids to security improvement within what political relations permit. Viewed as this kind of instrument, one can then question how successful a policy has been, whether arms control measures and concepts had been well utilized in support of a particular policy, and to what extent such a policy has moved toward the goals set for traditional arms

control. One does not ask if the carpenter's tools have been successful or not in building a house but rather, have they been skillfully used, have tools been invented as needed, and has the architect used these tools effectively under the circumstances.

In commemorating the 1960 *Dædalus* issue, it may be useful, from this point of view, to trace arms control developments by comparing its embryonic state circa 1960 with the current situation and then to speculate on how things may change, thirty years hence. In each stage arms control can be seen, not as an end in itself, but as a means of locking in security-enhancing restraints when political developments permit.

1960

Most of the fifteen-year period from the end of World War II up to 1960 was steeped in intense East-West hostility. And yet, in the latter segment of this period, there gradually developed, on the part of the two blocs, a sense of the futility of major wars in the Nuclear Age and the beginnings of a meandering search for ways to respond to this new imperative. On-again-off-again negotiations during the 1950s produced no formal agreements except for the Antarctic Treaty (1959) which banned military deployments on that continent. Successive frustrations forecast an unending impasse; at best it was the beginning of a learning period.

Looking beneath the surface, however, one can glimpse excursions into policy positions that tested the waters on both sides. Considering the vast differences in the political and military cultures of the two sides and their great asymmetries in forces and geopolitical advantages, it is unlikely that much common ground could have been found in these early years. Moreover, on the Soviet side, the first half of the period was dominated by an increasingly paranoid Stalin. This was then followed by several years of struggle for leadership and an intense effort by the Soviet Union to hide its striking strategic inferiority despite Sputnik. The western side experienced its own, albeit shorter and less lethal, excursion into paranoia induced by Communist takeovers in Eastern Europe and China, spy scares, exaggerated "un-American activities," and an alleged missile gap.

Despite this unfavorable climate, Eisenhower and Khrushchev did sense the need to seek measures that would lessen the danger of war

and reduce military costs. This was the first time that both heads of state seemed to have the political will to act. Although they failed, it is instructive to trace what happened and why. Doing so sketches the setting for the arms control concepts that date from 1960.

Near the outset of his presidency, Eisenhower lay bare, with unusual eloquence, his deep anxiety over an endless arms race:

Every gun that is fired, every warship launched, every rocket fired signifies in the final sense, a theft from those who hunger and are not fed, those who are cold and not clothed. . . . This is not a way of life at all, in any true sense. Under the cloud of threatening war, it is humanity hanging from a cross of iron.

In this mood, intensified by the first Soviet thermonuclear explosion (August 1953), he made his first initiative—his “Atoms for Peace” proposal before the United Nations—in which he urged the three nuclear powers to turn over fissile material from their weapons stockpiles to an International Atomic Energy Agency (IAEA), which—in addition to storing the fissionable material—would search for peaceful uses for it, especially in electric power production. The offer was unwelcome but it did lead to the creation of the IAEA in 1957.

Eisenhower tried again in 1955 with his “Open Skies” initiative. This would have required the two superpowers to exchange the location of their military bases and then to allow overflights to check these thereby allaying fears of a surprise attack. Again no Soviet interest, but the Soviets began to give on two points: to discuss verification requirements prior to reaching agreement on reduction schedules, and to begin informing their own people of the devastating scale of nuclear war and Soviet vulnerability to it.

By 1958 two technical conferences including the United Kingdom, the United States, and the Soviet Union were arranged. The first was to deal with preventing surprise attack in anticipation of the oncoming missile age. Again no progress was possible because of the Soviet insistence on not compromising its secrecy to permit any monitoring. The second dealt with monitoring nuclear testing: this was an important forerunner of the Limited Test Ban Treaty of 1963.

While 1959 saw the impasse continue, there were further stirrings. This was the year of the Sino-Soviet break which increased Khrushchev’s eagerness for an arms control treaty that would keep China and Germany from developing nuclear weapons. Eisenhower, too,

wanted such a treaty and agreed that this negotiation not be linked to other negotiations. In the fall Khrushchev introduced a detailed plan for "general and complete disarmament." This was regarded in the West as largely polemical: it was in the tradition begun by Litvinov a generation earlier and continued by Gorbachev a generation later. In addition, the dialogue was advanced by their conceding that partial agreements, such as the test ban, might have to come first. By the Spring of 1960, a limited test ban seemed within reach but the general Soviet position insisting that verification only follow disarmament, not *vica versa*, blocked broader progress. This was part of the Soviet posture that put secrecy at such a high premium, but at the cost of encouraging worst-case strategic planning in the United States.

Another straw in the wind was the reduction of military forces on both sides in the late 1950s. Between 1955 and 1960, US forces dropped from 2.9 to 2.5 million. Much larger cuts were taking place in the Soviet Union: early in 1960 a law was passed requiring further reductions of 1.2 million. This was a great risk for Khrushchev; it is likely that military resentment at being discharged without regard to subsequent employment figured in Khrushchev's ultimate demise. In retrospect, the West's failure to react to this strong signal may have doomed a much earlier start on conventional arms control.

During the late 1950s Eisenhower kept a tight rein on the defense budget despite the heightened sense of threat and the popular anxiety over Soviet space successes. This was largely due to the results of reconnaissance flights by U-2 planes over the Soviet Union beginning in 1955. Their remarkable photographic monitoring accumulated increasingly convincing evidence that the Soviet missile programs were nearly stalled and that the missile gap was a Soviet condition, not an American one. However, these results were kept highly restricted. Meanwhile, Khrushchev visited the United States in 1959. In increasingly friendly chats with Eisenhower, no mention of these flights was made. Apparently, Khrushchev believed that Eisenhower was not informed of these flights. A sense of tentative trust seemed to be developing between these two principals and plans were made for a new beginning on arms control measures at a summit planned for June 1960.

Plans were drawn up by a committee chaired by James Killian; its membership included Jerome Wiesner and myself. A number of ambitious and wide-ranging possibilities were examined. These even

included, for example, a staged approach to disarmament leading to a restricted world government along the lines of Clark and Sohn.⁵ The arms control discussions that had been underway in Cambridge (the Harvard-MIT Study Group on Arms Control) contributed in many ways. Much of this outlook is captured in Wiesner's contribution to the 1960 *Dædalus* volume.

The case presented by the U-2 flights was nearly complete. Releasing the conclusions of this work would strongly affect military programs; hence the temptation to make the argument as tight as possible. One more flight was envisaged and the argument was made to Eisenhower, who personally approved each flight. The conditions in early May were optimal; Eisenhower reluctantly agreed, knowing that it would precede the Paris summit by only a few days. The rest is well-known history. The U-2 was shot down near Sverdlovsk, the surviving pilot held in secret until Eisenhower put forward the "weather plane off course" cover, and then the revelation that the pilot and much of the plane was in Soviet hands soon to be on public display.

The result was that the summit was a shambles. Khrushchev, who had been basing a great deal on his new relations with the American president, was badly compromised at home, as were many who were urging improved Soviet-American relations. Khrushchev's instructions for the summit were clearly not to proceed unless he received a public apology from Eisenhower. None was forthcoming. And so were dashed the hopes that both sides had harbored for a start on controlling the arms race before Eisenhower stepped down. As was to happen many times in the future,⁶ the failure was not arms control but the political process that made its use impossible.

It was in these months of rising hopes and striking failure that much of the arms control work on the *Dædalus* volume was done. For real progress it seemed that two requirements stood out. First, the need to verify that agreements were being kept, particularly verifying what remained after negotiated reductions had been made became a cardinal issue. The collapse of "Open Skies" was overtaken by expectations that reconnaissance from cameras in orbit would soon be possible. In this lay the potential to erode the stubborn Soviet position on maintaining maximum secrecy. The second requirement was the recognition that the two superpowers could communicate despite differences and hostility and that this shared need to do so

could provide the basis for exploring the opportunities that arms control theory was developing.

Several private groups began such explorations in this 1960 period and continue to provide a testing ground for new ideas and to play a role in what might be called supplementary diplomacy to this day. The first to form was the Pugwash group in 1957, initially bringing together Soviet and American scientists. Its meetings soon attracted high government attention. The conference, held in December of 1960 in Moscow, was a breakthrough in opening up informal dialogues between leading figures on both sides. There were twenty-four Soviets including twelve leading academicians, as well as Admiral Isakov, General Talensky, and Emelyanov, the chairman of the State Committee on Atomic Energy. The twenty-one Americans included Jerome Wiesner and Walt Rostow who were to assume important positions in the Kennedy administration. Thirteen other countries were represented. The meeting lasted two weeks and allowed for very extensive exchanges, briefings of government officials, and follow-up discussions. The material in the *Dædalus* volume was presented in detail. The Soviets demonstrated that more thinking had gone into their three stage proposal for general and complete disarmament than had been appreciated. The Soviet fears of a devastating missile attack arising in a future crisis seemed real. Surprise attack was a shared concern. All in all, a number of lasting contacts were made and the next conference in Stowe, Vermont, held in the shadow of the resumption of nuclear testing by the USSR, nevertheless did carry understanding further. Pugwash Conferences continue to be held annually and provide a nongovernmental forum for many national representatives. However, their importance has probably been superseded by the Pugwash workshops that are held each year on specific security topics which provide useful interactions between nonestablishment experts and those with close governmental connections.

In this same period another, more broadly conceived, strictly Soviet-American group began meeting. It became known as the Dartmouth Conference after the place of its first meeting in 1959 and had the firm endorsement of President Eisenhower. It now meets biannually but it too has developed a series of workshops held several times between conferences for more specialized discussions. By 1965 the more technically inclined Soviet and American members of the

Pugwash group felt a need for more concentrated bilateral meetings. As a result, there began a Soviet-American Disarmament Study group that for ten years held quite useful discussions of strategy and arms control at an expert's level. It is widely thought that the willingness of the USSR to negotiate an ABM Treaty arose from the seminars that this group held. It disbanded in 1975 but was replaced by a more official group based in the national academies of the two countries and continues this type of activity under the present cochairmanship of W. Panofsky and R. Sagdeev (now replaced by V. Goldanski).

It is difficult to assess the value of such repeated informal meetings. The fact that leading individuals continue to invest their time in them is one indicator of their worth. Another is the training ground they have provided to persons destined to enter high government positions. Henry Kissinger, Cyrus Vance, and many others who became influential in the US government made their first visits to the USSR as members of these groups. Indeed, more than half of the authors of the 1960 *Dædalus* volume were (or became) active participants. Nearly all of Gorbochev's scientific and technical advisors have had similar "early training."

1990

Jumping over the quarter century since 1960, which included some landmark arms control treaties as well as setbacks and lost opportunities, we arrive at 1985, the turning point which has led to the remarkably changed world of 1990. By 1985 the Soviet Union had a new and different leader who sensed the scale of the plight into which his country had fallen, due in part to overcommitment to military expenditure. The revolutionary reforms which he set in motion over the subsequent five years, and Reagan's and Bush's willingness to respond to his initiatives have transformed the political and military structure of the Soviet Union and Eastern Europe, as well as East-West relations, beyond any previously imaginable extent. As a consequence, frank communications at all levels have expanded in the Soviet Union: citizens and visitors alike can move almost without restriction; most secrecy has vanished; and truly verifiable arms control, aimed at equalizing and reducing the armed force structures of East and West, has become negotiable.

The negotiations that have been set in motion and, in the case of intermediate range missiles, accomplished, dwarf any previous experience. The question arises naturally as to how this remarkable change came about (and so quickly). From the voluminous printed record of these times and from conversations with a number of informed Soviets, it would appear that at the beginning of his term in office, Gorbachev sensed the bankruptcy of the former system, the excessive drain on the economy of the military, and the lack of any intent of attack from the West. Moreover, the experience of Chernobyl drove home the destructiveness of nuclear weaponry in a compelling way. Initially, Gorbachev greatly underestimated the extent of restructuring that was needed but as this requirement grew, so did the need for a prolonged period free of external tension either from NATO or from repressed neighboring states. In the military sphere his need to reduce expenditures meant that the Soviet Union could not compete with the high level of defense expenditure that the Reagan administration had reached in 1986, nor could they compete with the modernization underway based as it was on a sophisticated electronics industry of which they had no counterpart. Even the United States' strategic defense plans (which by 1987 seemed unrealizable) nevertheless reinforced the futility of their pretending to compete. More important, the need to compete at such high levels of expenditure was fading as Gorbachev disowned the threat of an invasion from the West.

This radical change in the political relationship not only opened new opportunities for drastic arms reductions and the realization of the benefits long claimed for arms control but also focused world attention on success in this area as a measure of the reality of the political change itself. This unleashing of arms control was first noticeable in the sudden agreement on the Stockholm Accords of September 1986. These committed the NATO and Warsaw Pact (WPO) nations to measures that would reduce the likelihood of surprise attack such as prior notification of major military exercises, hosting military observers at major exercises, prior disclosure of annual schedules of military activities, and limiting military maneuvers to 40,000 troops.

The next event was the successful conclusion of the Intermediate-Range Nuclear Forces (INF) Treaty which became effective on June 1, 1988. This required the elimination by both sides of all ballistic

missiles with ranges between 500 and 5,500 kilometers within three years under on-site verification, as well as continuous monitoring of plants capable of producing such missiles. By the end of 1989, 80 percent of Soviet missiles (1842) and 50 percent of US missiles (896) had been destroyed, well ahead of schedule. Not only was this a testament to the Soviet's abandoning their traditional embrace of secrecy but it brought the military commands of both sides into the conduct of these operations and in so doing gave them a vested interest in arms control.

Negotiations on conventional force reductions began in early 1989. NATO aimed at achieving asymmetrical reductions to eliminate the preponderance of Soviet forces and then to make modest reductions on both sides once parity had been reached. This fragile goal was given life by two Gorbachev actions. In the fall of 1988 he proposed that the area of negotiation be expanded from Central Europe to "the Atlantic to the Urals" (ATTU) thereby enlarging the scope to truly meaningful proportions. In December 1988 Gorbachev took the further initiative of cutting back nearly a quarter of the USSR's force advantage prior to negotiations by announcing that they would unilaterally reduce their forces by 500,000 troops, and withdraw 50,000 troops, 10,000 tanks, 8,500 artillery pieces and 800 combat aircraft from the ATTU regions. Six of the tank divisions and half of the 10,000 tanks were to come from the Central Region and the remaining forces would be restructured along clearly defensive lines. Such withdrawals are proceeding on schedule.

The Conventional Force Reduction (CFE) talks are now in their third year and at recent summit meetings it was pledged that they would approve a draft treaty by the end of 1990. Great progress has been made on setting definitions and limits on tanks, artillery pieces, armored combat vehicles, aircraft, and helicopters. The exchange of data and verification protocols play a dominant part in this enterprise. Because twenty-three nations are involved in these bloc-to-bloc negotiations which cover a hundred thousand military items, it is obvious that nothing of this complexity has ever been attempted before and its successful realization will create the underpinnings of a new European order.

With the implementation of these reductions, withdrawals, and destruction of military equipment, the realistic possibility of an invasion of Europe from the USSR or vice versa, even after full

mobilization, has virtually disappeared. Many months of highly visible preparation would be required even to begin such an undertaking. Nevertheless, substantial military forces and equipment will remain and could constitute the nucleus of remilitarization at some future time. Therefore, further agreements must be reached to consolidate the era of security that is promised.

Such consolidation will most likely begin with a continuation of arms control negotiations aimed at a follow-on treaty to CFE, to be known as CFE II, a treaty reducing or eliminating short range nuclear forces (SNF) from Central Europe, and an extension of confidence-building measures that insure that military deployments and exercises do not have an aggressive potential.

But these further changes will be intimately connected to the central issue of how to recast the security situation in Europe with the Warsaw Pact essentially gone and Germany unified. Three structures are discernable and may represent the succession of steps that might occur. First, NATO and WPO may change their own natures to become political-military associations that carry on the evolution of security arrangements in Europe. A joint consultative body would be essential, composed of the Four Powers from World War II, a unified Germany, and representative smaller powers. Second, with inducements and encouragements, the remaining five non-German Central European nations may decide to form a collective and neutral security alliance so as to form a neutral zone which, in conjunction with Austria, Finland, Sweden, and Yugoslavia, would separate NATO and Soviet forces to such an extent that any East-West conflict would require many months of visible preparation. If this were combined with the negotiation of lowered national troop levels in CFE II, the German military forces would be restrained in a nondiscriminatory way. The result: Europe could at last have a robust security regime that should provide stability far into the future. Third, if the evolution of European security did not fully follow this path, there may develop in time a Pan-European security arrangement through the growth and transformation of the thirty-five-nation Conference on Security and Cooperation in Europe (CSCE), an outgrowth of the Helsinki Conference of 1975. This would provide full membership to all European powers, the Soviet Union, the United States, and Canada. With a still larger membership, a Security Council-like executive body with special powers,

perhaps composed of the grouping noted in the first alternative above, would be expected. Of course, such a broadly based association would experience the great bureaucratic difficulties associated with large national groupings, but it would afford clear membership in the enterprise to both of the ultimate guarantors for deterring war, the United States and the Soviet Union.

Still another arrangement would be for the Central European countries to join with the non-US NATO countries in the form of a Western European Union which would then negotiate security arrangements with the United States and the Soviet Union. The eventual success of the European community, which would provide Europe its long-sought identity, may favor this path but its weakness lies in the possibility that early European integration efforts may not survive the traditional cleavages and animosities of European life and that the exclusion of the United States and the Soviet Union may be adverse to Soviet interest in integration with Europe and to the traditional cultural, security, and economic ties of the United States with Europe.

Thus, 1990 will end with hope and promise far beyond any imaginable dreams of 1960 and the intervening years, but with unforeseen challenges obscuring the outlines of the distant shore to which the current momentum points.

2020

Speculation thirty years ahead is an exercise in fantasy even in normal times since neither political nor technological developments can be divined that far ahead; in the present state of East-West fluidity it may be a demented exercise. Yet it is in times of fluidity that analysis and insight may provide positive direction. In this sense the whole nongovernmental community of analysts, strategists, arms controllers, and visionaries have an opportunity to look well ahead, beyond the range to which governmental policy makers are, by the pressure of their work, confined. The shape of the world of 2020 may well reflect this kind of prior activity if it is imaginatively done and inserted into the tempering influence of public discussion in the intervening years.

Only some random suggestions are possible in these concluding remarks. It seems useful to consider first the next few years, up to ten,

for which the present provides some guide, and then the further future stretching up to 2020.

Again, our assumption is that military forces and arms control are the servants of national policy which in turn depends on the planned and unplanned developments within and among nations. Hence, what is possible in arms control remains hostage to unpredictable political developments. The present world is surely more secure from worldwide war with its inevitable nuclear climax than in any of the recent past. But it remains unclear if this improvement can be the basis for a more stable and fulfilling future. The political fluidity in Eastern Europe and the Soviet Union may lead to chaos, the Middle East may erupt, much of Asia may turn to ferment. Nuclear capability is likely to spread further with the potential for limited use. Only if these threats can be contained can an attractive future be projected. Taking this more optimistic option one can hope in the next decade to see the transformation of Europe and the Western Soviet Union from being, as it has been in the recent past, a tinder box of the the greatest concentration of destructive military power ever assembled, into a politically cooperative community with the economic advancement of its poorer parts well underway. In the rest of the world much depends on whether the initial broad cooperation through the United Nations in response to the Iraqi invasion of Kuwait will succeed in reversing this aggression and thereby lead to the increasing use of collective action to reverse military conquest.

To this end a number of rather obvious arms control measures would contribute substantially to improved security in Europe by lowering the threat of military use and the costs of maintaining excessive military establishments.

As a first step the current negotiations should be brought to a successful conclusion and their follow-on negotiations undertaken. CFE should achieve the reduction of forces in the ATTU region to parity at levels significantly below those now existing in NATO. CFE II should carry the reductions further, arranging for the withdrawal of Soviet troops to their homeland, reducing US forces in Europe to below 100,000, and severely limiting the size of the armed forces of individual nations as well. Such a drawing down of troops would remove most of the fears of a military resurgence in a unified Germany without the stigma of "singularization" and of a Soviet Union that could reverse its course so as to again threaten the West.

The post-CFE arms control agenda has been widely rehearsed. With the signing of the CFE treaty, follow-on SNF negotiations aimed at removing foreign-controlled land-based nuclear weapons from Europe are promised. START II should aim at reductions of actual warheads to levels approaching 3,000, one-third the levels of START I. The United States and the Soviet Union should agree to ban antisatellite weapons and reaffirm the ban on deploying strategic defenses inherent in the Antiballistic Missile Treaty of 1972 and include verification protocols that insure that both sides are complying. With the reduction in submarine-launched ballistic missiles that the above warhead reduction implies, it is critically important that the remaining weapons be made as invulnerable as possible so that there is less temptation to use them so as not to "lose" them if conflict breaks out. The possibilities of removing, in verifiable ways, nuclear weapons from surface ships should be studied and trial inspections undertaken. If these results were to be realized in the early years of the next century, important consequences would result. The reduced numbers of weapons would eliminate dangerous options such as exist today where submarines at sea or bombers in flight might be destroyed by targeting many nuclear weapons in the suspected area. While such a program of arms reductions would initially focus on the large Soviet and US nuclear stockpiles, it serves other useful purposes as well. For example, progress along these lines should provide the basis of bringing the other nuclear powers into full partnership in a new security regime in which nuclear weapons serve only to deter the use of nuclear weapons.

As another example, some progress along these lines could spur the continuing effort to stop the spread of nuclear weapons. The crucial date of 1995—when the Nonproliferation Treaty comes up for renewal, revision, or termination—is approaching fast. The failure of the United States and other nuclear powers to achieve any of their goals at the recently concluded Review Conference, because many Third World countries insisted on progress to ban nuclear tests, serves as a warning that the bargain struck in the original treaty is in jeopardy.

The addiction of most industrialized countries in providing arms to other less developed countries should be brought to an end. More than any other measure, such an act of cooperative restraint would greatly reduce the level of conventional warfare outside the industri-

alized world. The extent to which such profligate arms shipments to Iraq contributed to the current crisis in the Persian Gulf provides a graphic lesson in the error of this pursuit. Czechoslovakia, which had depended upon arms sales for half of its export trade, has recently decided to forego all such sales. With the Iraqi example of the folly of unrestrained arms trade and the Czech example of self-restraint in the face of a failing economy, a new item should be added to the arms control agenda: to negotiate a global ban on significant arms sales.

Finally, unusually effective diplomacy will also be required to bring the Chemical Weapons Convention to a conclusion within a year or two. As the East-West confrontation fades along with much of the weaponry supporting it, new initiatives will be needed to reduce the level of potential conflict in the rest of the world. The Chemical Weapons Convention ranks high in this effort. Moreover, it is clearly in the interests of Third World countries, who are very vulnerable to such weapons because they cannot afford the gas masks and protective clothing that can allow effective defense for more affluent nations. Success in getting the whole Middle East to join in this Convention should be the principal aim now that the Soviet Union and the United States have undertaken to greatly reduce their own huge stockpiles even without a comprehensive treaty.

Turning to the longer term future stretching to 2020, the outlook is, of course, much more problematic. There is more hope than in the recent decades that all-out nuclear war can be avoided. But the continuation of localized, conventional wars seems inevitable. One can expect that, with the ending of the Cold War, proxy wars fought with the aid of the two Cold War antagonists will end but other causes of conflict will invite recourse to force. Between these two extremes lies the new possibility of a crossover war in which smaller countries, having developed nuclear weapons, even if untested, will choose to use them if local conventional conflicts do not develop as they wish. Such nuclearized conflicts would almost certainly attract the involvement of some of the major nuclear powers and the old scenarios of escalation will threaten anew.

Even if one can foresee the liquidation of the Cold War and its accompanying overmilitarization of East and West in the 1990s, the following decades hold the potential for continued or intensified local wars that in a few cases may go nuclear. The risk of major nuclear war is unlikely to disappear altogether. However, against this rather

pessimistic view there are some more hopeful signs. Developments in Europe may set the pace for insuring peace with greatly reduced deterrent forces and a workable version of cooperative security. The rising tide of global communication can overcome misinformation that fuels conflict. The trend toward democratic forms of government is likely to continue. With each convert the chances for peace increase since there are very few cases of representative governments warring with each other. The broad support against aggression displayed by the United Nations in the summer of 1990 may hold and repeat itself in future crises.

Thus, the optimist and the pessimist have abundant inventories from which to draw arguments supporting their outlook. Within such inventories two developments that can go either way are certain to dominate the choices between catastrophic war and peace in the coming decades. We deal here with the challenge of seeing how these developments might contribute positively; contrary outcomes can occur through default along many routes too numerous to map.

One development is obviously the way nuclear weapons are managed: the extent to which they are rolled back and deemphasized by the present nuclear powers, and the extent to which they spread and are constrained by the new nuclear powers that may arise. With more than 95 percent of today's nuclear weapons belonging to the two superpowers, the reduction of the nuclear threat must begin here. The arms race that has led to the present stockpiles has been principally fueled by three circumstances: the mistrust generated by the Cold War which led to *worst-case, highly conservative planning*; the alleged need for many diverse weapons in large numbers to be used in *war fighting* should conventional weapons use fail; the desire to have sufficient strategic weapons, that is, *counterforce* weapons, to eliminate as much of the other side's nuclear forces as possible.

We now see that the first rationale is rapidly eroding, although it is widely believed that minimal forces must be retained for insurance. The war-fighting rationale is also receding as the realization spreads that even tactical use of nuclear weapons would be suicidal in the countries where they were used and that such use would escalate to a full-scale nuclear exchange.

The third rationale, counterforce, is losing its primacy because new generations of weapons—land-mobile missiles, cruise missiles, and perhaps low-observable (stealth) bombers—cannot be effectively

targeted. Although pressures to compensate for this development can be expected, only a very limited redress seems possible. Therefore, the situation is driven back to conceptions developed in the 1950s, that is, to seek security in highly survivable or invulnerable weapons that would be reinforced by cooperation between adversaries so that such weapons (second-strike) would not be put at risk. This view of a stable deterrent lost appeal as accuracy increased permitting destruction of silos and multiple warhead missiles lowered the cost of bombarding fixed targets. But if fixed counterforce targets faded in the coming decades and agreements on sharp reductions in numbers take over, there will be little incentive to use weapons in the counterforce mode where many weapons would be required to destroy one target. Thus, it is hardly likely that the high priority for counterforce capability can be sustained.

In this situation the advantages of returning to the earlier conception of cooperatively insuring the invulnerability of strategic forces may win out. In this case the major nuclear powers could abandon all counterforce developments and armaments. This would mean a mutual renunciation of much of the present strategic deployments: antisubmarine warfare; antiballistic missiles; and defenses against bombers and cruise missiles. In this way nuclear weapons could be reduced well below START II levels and deterrence will remain secure. Moreover, in this situation of completely secure strategic weapons, a new conception of nuclear weapons use could arise. This would be one in which strategies of "no first use" or "only last resort use" would be replaced by "no use without adequate warning for evacuation." With weapons quite secure against preemptive attack, warning of several days could be given for any target—military, industrial, or urban—with the expectation that the population would be removed. The destruction of the target would only be carried out in the unlikely event that negotiations would not have taken place to resolve the crisis within the period allowed for warning. Obviously, such a transition would require a remarkable arms control effort, but it need not concentrate so much on "bean counting," since, in such a secure environment, numbers of offensive weapons would not be so critical. Should history play out somewhat along these lines, nonnuclear countries would have less interest in acquiring nuclear weapons, since their usefulness and prestige value would largely vanish. Thus, developments can be sketched that would, over the next three

decades, roll back the “genie” of nuclear weapons to the point where their importance and lure would recede and, with greatly reduced numbers, their threat would no longer be civilization-wide.

The second seminal development is more broadly based. It is the myriad of problems—at all levels, including the military—that will accompany the catastrophic impact of adding nearly five billion new inhabitants to the earth’s fragile biosphere by 2020. Without wholly new and vigorous means of reducing population growth that can be introduced quickly—and this seems unlikely—this burden will descend upon the earth creating problems that will radically recast human priorities. A highly predictable result will be the sobering realization that most of the world’s inhabitants cannot attain minimal living standards represented by roughly \$1,500 GNP per capita per year. One argument lies with energy use. Were the energy use of the industrialized world to level off at present values and the remainder brought up to the \$1,500 level by 2020, at least six times as much energy would be required worldwide. Yet there is no foreseeable way in which this could be provided at tolerable costs—either economically or in terms of environmental degradation.⁷ Moreover, this minimal living standard is roughly the level at which developing countries voluntarily decide to limit family size to near replacement numbers. With this route of population control largely unattainable, the outlook is bleak indeed.

The purpose of this digression is to indicate the scale of the population growth problem in the three decades under consideration. One likely consequence is that the world will become compartmentalized into regions ranging from sufficient to moderate living standards and into much more populous regions of abject poverty and famine. In the viable regions the spread of democracy and economic sufficiency may have led to such political integration that security within such regions is well established with arms control playing its traditional role or even moving toward its optimal destiny—its demise, since it would no longer be needed as it is not today among nations with a tradition of nonaggression, economic integration, and trust based on experience.

In this more benign outlook, the industrialized world will be beset with severe environmental crises and the inability of twentieth-century approaches to deal with the spreading famine that attends uncontrolled population growth. Surely such a radically different

world will find the internecine warfare and commitment to military power of the past century irrelevant to the new challenges. It is hard to conceive of starving populations mounting effective assaults on the developed world, but the stage will be set for ideologically motivated groups to devise devastating terrorist attacks on people or assaults on the infrastructural fabric of the developed world. Even more likely will be the flood of immigration from the impoverished world into the developed world creating new dimensions of conflict. In time the developed world, though much less affluent than today, must turn its talents to reducing population growth both to preserve a viable biosphere in which to exist and to affirm its claim to a humanistic spirit that values the quality of life. Whether the beginning response can be made to this challenge by 2020 cannot be foreseen, but the stresses that will develop from either its remedy or its neglect will surely generate new dimensions of conflict. It is difficult to imagine any policies that could cope with this dilemma without arms control playing a supporting role in a vastly different environment.

Perhaps most important of all will be the necessity of turning much of the world's technology to sustaining a marginally viable biosphere and a desperately poor population until in some way the stress of burgeoning population on the world's "commons" will be relieved. In such an era the technology resources that have been devoted to military purposes will have a special call to higher purpose; this may change the military environment of 2020 well beyond what we can now imagine.

Of course, the world may not develop in this way or may not do so this quickly. But so far as one can see, these two challenges will dominate the generation that will give thought and guidance to the early twenty-first century. Surely these will far outstrip those of our generation who may lay claim to having averted the destruction of civilization by avoiding nuclear war.

A fitting tribute to the 1960 *Dædalus* volume in the year 2000 would be one in which the response to these major challenges essential to survival in the twenty-first century might be joined.

ENDNOTES

- ¹See *Dædalus* 89 (4) (Fall 1960); T. C. Schelling and M. H. Halperin, *Strategy and Arms Control* (New York: Twentieth Century Fund, 1961); and Hedley Bull, *The Control of the Arms Race* (New York: Praeger, 1961).

²Schelling and Halperin.

³For example, M. H. Halperin, *Arms Control in Retrospect* (unpublished); and A. H. Chayes and P. Doty, *Defending Deterrence: Managing the ABM Treaty Regime into the 21st Century* (Washington, D.C.: Pergamon-Brassey, 1989).

⁴For example, T. H. Schelling, "What Went Wrong with Arms Control?" *Foreign Affairs* 64 (2) (Winter 1985–1986): 219.

⁵G. Clark and L. B. Sohn, *World Peace Through World Law* (Cambridge: Harvard University Press, 1958).

⁶For example, the blocking of the start of SALT I by the Soviet invasion of Czechoslovakia and the failure of SALT II ratification by the Soviet invasion of Afghanistan.

⁷See, for example, J. P. Holdren, "Energy in Transition," *Scientific American* 263 (3) (September 1990): 156–63.

Arms Control in the 1990s

TO WHAT EXTENT ARE THE CONCEPTS AND GUIDELINES about arms control that were developed in the *Dædalus* Symposium of 1960 relevant to the conditions of the 1990s?

I

The 1960 thinking regarding arms control was largely shaped by two factors: the impact of nuclear weapons and the context of the Cold War. The driving force was the conviction that large-scale nuclear war would be a common disaster. Hiroshima had been obliterated by a single bomb of about fifteen kilotons. Fifteen years later, both sides had far larger fission weapons and far more lethal fusion weapons in growing numbers and emerging ballistic missiles as well as long-range bombers. By then political leaders on both sides understood the catastrophic character of major nuclear war. In the West, that conviction arose early and was reinforced as the weapons became more destructive and numerous. The Soviets had explicitly adopted the same view by 1955.

Strategically, this prompted the high priority for deterrence: to inhibit aggression by threatening retaliation causing unacceptable damage. But mutual deterrence was not wholly stable, or free from risk. The threat presupposed use of the weapons if deterrence failed. Inevitably both sides were constantly seeking to improve their weapons and delivery systems to make them more effective and less vulnerable and to avoid being surpassed. That competition introduced a serious element of uncertainty and potential surprise with the specter that one side might achieve the means to disarm the other by

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a first strike. Moreover, there were the risks of accidental war through miscalculation or misreading the intent or actions of the other side, especially in a crisis. Missiles radically shortened the time for decision or response. The emergence of other nuclear states would further complicate the situation. Thus, both sides seemed to share a common interest in avoiding nuclear holocaust and in minimizing these risks and instabilities.

The rational conclusion was that the two sides should cooperate on measures for these purposes. This was not a novel conclusion. Indeed, the early postwar period had spawned a variety of efforts "to control the arms competition." They were essentially of two types. One sort was represented by the Baruch Plan (1946), and later by the various proposals for "general and complete disarmament"; they aspired to abolish nuclear weapons and all armaments by stages. These were widely seen as utopian or propagandist. Indeed, by the mid-1950s both sides had conceded that the existing nuclear stockpiles made it impractical to eliminate nuclear weapons altogether on any reliable basis. Yet in 1960, both the Soviet Union and the Western powers were still making proposals for "general and complete disarmament." The McCloy-Zorin talks in 1961 reiterated that goal.

A second approach was taken by Eisenhower, who was deeply interested in moderating the arms race and the danger of nuclear war, and doubtlessly would have favored broad disarmament if feasible. Since it was not, he sought to make a start by stabilizing deterrence by ad hoc or partial measures for reducing some of the risks, such as surprise attack, accidental war, and the spread of nuclear weapons. He proposed limited steps such as "Atoms for Peace," "Open Skies," a test ban, the Surprise Attack conference, and Stassen's limited proposals. These were intended to lure the Soviets into dialogue regarding useful specific measures for arms control which might lead to broader cooperation.

The *Dædalus* Symposium developed this second approach and sought to clarify its rationale and define its purposes, criteria, and requisites. For most proponents the primary aims of arms control were to bolster deterrence, to make it less risky, less costly, and more stable. But some, like Jerome Wiesner, hoped to achieve comprehensive disarmament by stages.¹

In pursuing these aims one had to confront the implications of the Cold War for efforts to achieve cooperation on arms control. The

basic clash of interests and purposes, and deep distrust, between the West and the USSR had prevented any significant progress in the years that preceded these efforts.

The *Dædalus* essays, however, sought to analyze how cooperation for arms control could be fostered and carried out despite this profound conflict of objectives, and what limits it imposed on such cooperation. Overcoming distrust required effective verification to safeguard against violations. The new “spy” satellites would help penetrate the barrier of Soviet secrecy. And the *Dædalus* essays stressed that the proper criterion for the verification system was not perfection, which was unattainable, but the reliable ability to detect a violation soon enough to enable the other side to offset it and prevent a significant shift in the military balance. Hence, the adequacy of the inspection system was closely related to the nature and extent of arms control and the possibility of compensating for any significant violation. Still, the East-West rivalry did impose serious limitations to nuclear arms control, as experience would show.

II

How did arms control fare in practice during the Cold War? How far did it contribute to bolstering deterrence and stability, to reducing the risk of war, and to constraining military spending? During the three decades, the United States and the Soviet Union made a series of arms control treaties, bilateral and multilateral, which address various concerns. Eighteen (some unratified) dealt with nuclear issues: to safeguard against war by accident (five); to constrain proliferation (six); to regulate nuclear testing (three); SALT I and II, ABM (Antiballistic Missile Treaty), and INF (Intermediate Range Nuclear Forces Agreement).²

In toto, those agreements contributed, at least modestly, to some of the goals of arms control outlined in the *Dædalus* volume. They may have mitigated the risk of accidental war by improving US-Soviet communication. They may have slowed the spread of nuclear weapons, though they did not inhibit countries determined to develop such weapons, like India, Israel, Pakistan, and China. The test ban has been more useful in preventing fallout (a real ecological benefit) than in actually constraining the extent of testing.

The treaties limiting strategic offensive weapons and the ABM Treaty have made some programs more predictable and some military planning less subject to "worst-case" projections. But while the treaties capped some systems, they had little impact on the overall competition in strategic offensive weapons as was shown by the buildup of the Soviet Union in the 1970s and of the United States in the 1980s. In effect, SALT I and II confirmed the plans and programs of the two sides without constraining them from anything they wanted to do. The United States, which had not ratified SALT II, repudiated its limits in 1986. Whether the SALT treaties reinforced deterrence seems debatable.

The ABM and INF Treaties are somewhat different. The ABM Treaty has prevented the deployment of significant antimissile defenses by either side. Without the Treaty, had either side deployed, the other would almost surely have followed, thereby adding uncertainty for deterrence and probably stimulating more offensive buildup. Certainly, the decision of the Reagan administration to proceed with SDI (the Strategic Defense Initiative) after 1983, and to adopt the insupportable, "broad" interpretation of the ABM Treaty, which would essentially gut it, would have impeded the START negotiations far more if Congress had not forced compliance with the traditional interpretation. And, of course, the Krasnoyarsk radar, which the Soviets have admitted was a clear violation, also impeded progress on arms control.

The INF Treaty is significant more as a precedent than for its limited military impact. It has opened the way for more consequential agreements by providing for: actual destruction of a class of nuclear weapons; much larger cuts by the Soviet Union than the United States; and much more intrusive verification than SALT I or II, which both relied on "national technical means" alone. Each of these features is a good omen for the ongoing and future negotiations involving far more important systems.

Finally, the arms control process in general and the East-West dialogue and institutions it generated may have had an important intangible benefit, as Joseph Nye and others argue.³ The process of communication may have helped to shape some of the content of the Soviet "new thinking" on security and military strategy, even though the impetus for these radical changes has certainly come from domestic sources.

In short, arms control agreements before 1989 achieved some limited benefits, but aside from the ABM Treaty, they did little to reinforce deterrence or to reduce materially the risks or consequences of a nuclear war. And each side continued to modernize its enormous nuclear arsenals, with major overkill.

The failure to accomplish more was a function of the political context:

(1) NATO strategy, and that of the United States, depended primarily on nuclear weapons, and ultimately strategic systems, for deterrence and defense against attack by superior Soviet conventional forces as well as by nuclear means. The allies were uneasy about any arms control which might make the US nuclear guarantee less "credible." And US and NATO military as well as the Soviets tended to resist any measure which might impair "war-fighting" capabilities including counterforce.

(2) Soviet leaders, and some in the United States, were convinced that "superiority" in nuclear weapons had value for political leverage or influence even though the forces of the opponent were sufficient to inflict crippling retaliatory damage. The effort to achieve superiority, which seemed to be the Soviet goal in the 1970s inevitably limited the extent of acceptable arms control, and also triggered the US programs of the 1980s.

(3) Deep-seated distrust and "worst-case" analysis reinforced these factors and were enhanced by the closed character of the USSR.

(4) Soviet rejection of methods of verification beyond "national technical means" limited the types of restraints which could be monitored and confidence in the ability to verify.

III

The 1990s will offer a radically different setting and role for arms control. The drastic changes in Soviet domestic security and foreign policy under Gorbachev and the revolutionary upheavals in Eastern Europe have created a wholly new context for security.

Domestic Priority. Gorbachev clearly recognizes the desperate state of the Soviet system and the urgent necessity of restructuring it

in order to restore its vitality and productivity. Accordingly, he has strong motives to reduce the drain of military spending in order to shift resources and skilled manpower to civilian production. In addition, he needs a peaceful, relaxed external environment for an extended period.

Military Doctrine. Under this stimulus, Gorbachev has reshaped the Soviet approach to security and defense in a number of respects:

- His top priority is to achieve security and stability at much lower cost.
- Security is mutual; hence, striving for “superiority” is both futile and counterproductive. “Reasonable sufficiency” should be the criterion for Soviet armed forces, which should be organized and equipped to carry out a “defensive” strategy of defense rather than offensive operations.
- Security can be assured more by political measures and arms control than by military capacity.⁴

Eastern Europe. The sweeping movement under way in Eastern Europe toward political pluralism, democratic regimes, and market economies profoundly alters the security landscape. The Warsaw Pact has become a shell and the Soviets are being pressed to withdraw forces. In acquiescing to (and even fostering) the changes, the Soviet Union is clearly following an utterly different conception of its interests, security, and ideology. Even a unified Germany in NATO has been accepted with constraints agreed to on size of forces and nuclear weapons.

Asymmetry. For forty years NATO strategy has been based on the premise that Soviet superiority in conventional forces made early use of nuclear weapons inevitable even against conventional attack. Now Gorbachev has accepted the necessity for asymmetrical reductions in order to end this disparity and achieve parity at lower levels. The evidence that he is serious lies in his unilateral cuts in conventional forces and weapons now underway in Europe, the Soviet positions in the CFE (Conventional Forces in Europe) talks, and the asymmetrical cuts under the INF Treaty.

Verification. At least as important is the change under Gorbachev regarding methods of arms control verification. Until the INF Treaty,

the Soviets had been adamant in resisting any verification except by "national technical means" (primarily satellites). Now the Soviet Union has accepted on-site inspection and offers to agree to other forms of very intrusive verification. Together these changes overturn the basic premises underlying East-West relations for forty years: the Soviet threat to Western Europe and a divided Europe and Germany.

A Soviet attack on Western Europe is hard to conceive. The Warsaw Pact, which formerly drew half of its deployed forces from Eastern Europe, is militarily moribund. The Soviets are pulling their forces out of the region (except East Germany) and are cutting them by 500,000 men and 10,000 tanks by 1991, and under the CFE Treaty, will reduce their conventional forces and heavy weapons to parity with NATO. Mounting a major conventional attack on Western Europe would then require massive and extended rearming and mobilization which would give NATO many months of warning. Conventional stability also reduces the chance of nuclear war by escalation, which has generally been considered a much more serious risk than a nuclear "bolt from the blue."

The fading of the Soviet threat and the healing of Europe's division offer the opportunity for transforming East-West relations and the military confrontation in Europe. Gorbachev seems genuinely committed to that course. But at the same time, he is trying to manage a peaceful revolution in the Soviet political and economic systems and in the structure of the Union itself. What are his prospects for continuing in power? How far might a successor regime reverse his defense and external policies?

Gorbachev's support and authority have been declining at home, as the Yeltsin challenge shows. His political reforms and glasnost, while popular, are no substitute for better living standards. Unfortunately, he has made little progress in moving from the command economy to a market system or in raising the output of consumer goods: indeed, shortages of food, clothing, fuel, and other basics have worsened. His half-measures have been ineffective, but he shrinks from imposing the severe hardships and disruption entailed in more sweeping reform. Thus, Gorbachev has alienated or disappointed many groups: party conservatives by his political reforms; more radical reformers, who think his pace too slow; ordinary citizens impatient with shortages but concerned about a market system; and some of the military by his defense measures. Nationalist ferment in

the Baltic, Russian, and other republics threatens the unity of the USSR. The dramatic rise of Yeltsin, espousing drastic economic reform, reflects the deep discontent. Can Gorbachev, with all his political skills, surmount all the difficulties to carry through his program?

And if not, who might succeed him and with what policies? Political attitudes are tending to become more polarized between entrenched party conservatives resisting rapid change and radical reformers. A Yeltsin regime would presumably support the latter. Yet *any* successor regime would face the same dire crisis of a stagnant social and economic system, and the necessity of adopting drastic remedies for any hope of solving it. Externally it could not reverse the revolution in Eastern Europe and recreate the empire. It could probably revise the "new thinking" on security, military forces, and arms control, though it might hesitate to repudiate arms control or other agreements with the West to devote more resources to defense. Domestic turmoil would heighten the need for a relaxed international climate; foreign adventure would hardly serve as a popular diversion after Afghanistan.

Given the huge Soviet nuclear arsenal, the gravest danger would be a collapse of the system or of public order, leading to civil strife and chaos. Even if that is avoided, the Soviet Union seems destined to suffer from economic and political turmoil for an extended period as it gropes toward a restructuring of its political and economic system, and the structure and extent of the federation.

The West can not predict how long Gorbachev will hold power or who will follow him, nor is that necessary. The prudent course is to work expeditiously with him to put in place the components of a new order as rapidly as is feasible, while safeguarding against uncertainties. For example, the carrying out of agreements can be phased so that Western security would not be jeopardized even if a successor regime were to reverse some of Gorbachev's course. If he should be replaced, the West should attempt to work with the successor regime to achieve the improved relations sought with Gorbachev.

IV

The crumbling order in Europe will ultimately have to be replaced by new concepts and relations suited to new conditions, which are still

evolving. Achieving that new order will be far more complex and difficult than was the formation of the rigid, bipolar structure of the Cold War. It will require agreement and cooperation among the European nations, the USSR, and the United States. No longer will imposed regimes suppress diverse national interests in the East, nor will the Soviet threat prompt subordination of parochial interests in the West. Each state will be much freer to act on its own conception of its interests and priorities.

That would make agreement on relations, roles, and institutions complicated if conditions were settled and regimes stable. But, of course, they are in flux and the future is highly uncertain. No one can predict how fast or how soon the Soviet Union and Eastern European states will achieve the democracy or market economies to which they aspire, or what setbacks will occur on the way. The West is also evolving, albeit in a more orderly fashion. How will a united Germany affect the dynamics of the European Community and the relations among its members? With their economies more tightly integrated, will the Community move on to become more of a political entity? Will it take on security functions? How will the US role and the Atlantic Alliance be adapted to the evolving situation?

Inevitably, the new order will be less neat and tidy than the regime based on the Warsaw Pact and NATO. Its requisites will have to be met by combining the contributions of various institutions and agreements into a sort of mosaic of overlapping and reinforcing roles and functions. That will require agreement on how far existing institutions such as the European Community, NATO, CSCE, the Council of Europe, CFE, and START can perform necessary functions, and how they should be adapted.

One thing is clear: building a stable and viable order in Europe will take a decade or more, even on a hopeful scenario. And the period of transition will be marked by turmoil, upheavals, setbacks, and the risk of conflict, especially in Eastern Europe and the USSR. Yet the actions and decisions taken by the various states during that period will determine whether or not a secure and prosperous order ultimately emerges in Europe.

Consequently, it is essential to develop some shared conception of the characteristics of such an order—what structure of relations and institutions would be necessary and feasible as a basis for stable peace and well-being as conditions become more settled. What is needed is

not a blueprint for the future, but a framework to provide a basis for cooperation or coherent actions and to guide the making of specific decisions.

What sort of new security order should the West seek to achieve in collaboration with the Soviet Union and Eastern Europe? One alternative might be as follows:

- Security would rest ultimately on parity between the Soviet Union and the West, based on arms control agreements (CFE I and II). Active forces and weapons of each side would be 40 or 50 percent (or less) of current NATO levels, equipped for defense, and incapable of any significant aggression without extensive mobilizing and rearming, which would ensure many months of warning.
- The West would continue to have a common agency for organizing its reduced defense activities. This would be NATO unless and until the Europeans decided to assume this function within the Community or WEU. In that case, the United States would maintain its NATO guarantee and cooperate with the Community or WEU defense agencies as jointly agreed. In either case, the Europeans would provide the standing combat forces, and US forces in Europe would be only 50,000 to 75,000 needed for liaison, intelligence, and logistic support for US reinforcements in case of war or emergency.
- United Germany would continue as a member of the European Community and the Atlantic Alliance, and participate in NATO or the EC defense organization. With the Oder-Neisse border guaranteed by treaty, and nuclear weapons foresworn, German forces would be limited by the CFE agreements.
- The East European states, free of foreign forces, would become a neutral buffer zone between the Soviet Union and the Western Alliance. Their neutrality and security would be guaranteed by the United States, the Soviet Union and the Europeans. They could become associated with the EC economically, but not become members.
- The forces, weapons, and deployments of each of the European nations, as well as the Soviet and the US forces in Europe would be controlled by CFE treaties, with extensive provision for inspection and verification to assure full transparency.

- The United States and Soviet Union would reduce their strategic nuclear arsenals to 3,000 warheads or less, eliminate MIRVed (multiple warhead) land-based missiles, and control qualitative improvement in weapons in order to make a first strike self-defeating.
- The CSCE, with an adequate secretariat and staff, would become a Pan-European agency for oversight of arms control, settling disputes, and other functions as agreed, and serve as a forum for the members, including the United States and the Soviet Union, to deal with security and other issues of common concern.

Such a system would meet the legitimate interests of the various states, and the requisites for stable peace in Europe.

- Any significant Soviet-Western conflict would require massive rearming. The Western coalition of democracies could not initiate it, but if the Soviets started to rearm, the West, with the extended warning, could far outstrip the Soviet Union in mobilizing its strength. A fragmented West, without some form of joint defense, would not provide a balance for Soviet power.
- A democratic Germany, embedded in the EC and a joint defense structure in NATO or EC, with CFE-limited forces and no nuclear weapons, would be no threat to its neighbors or the Soviet Union.
- For Eastern Europe, the risk of Soviet threat or coercion is minimized by the CFE force restraints and CSCE, as is the danger of ethnic conflict among these states. The West should provide substantial economic assistance to foster progress and stability.
- The system would serve the US interest in stability and security in Europe, and preserve a stabilizing US role in Europe through the Atlantic Alliance, ties to the EC, participation in arms control and verification, and in CSCE.
- It would give the Soviet Union (in addition to security) a constructive role in Europe as a participant in arms control, CSCE, the European Development Bank, and a guarantor of East European neutrality.

Arms control is a cornerstone of this structure. It must be combined with, and linked to, the various institutions and other elements,

but is essential for all the main constituents. Some have argued that unilateral cuts should be relied on instead of agreements, which are slow and tedious to negotiate. While these are real costs, they are far outweighed by the advantages of agreements both in achieving and maintaining such a regime. Unilateral cuts or restraints can not be reliably verified and can be more easily reversed. Agreed restraints, monitored by agreed means, make violations less ambiguous and politically make a more potent warning. The monitoring system also provides transparency regarding military activities which is not only a deterrent to violation but a reassurance to others.⁵

Accordingly, one of the most critical tasks will be to achieve radical arms control. A beginning has been made, of course, with the START and CFE negotiations. They mark a new stage in arms control as compared to the past. Yet they are only a first step in taking advantage of the unprecedented chance for more radical measures. START will actually cut nuclear strategic arsenals by only about 25 or 30 percent, though it will reduce some of the more destabilizing weapons. The remaining stockpiles will still be 9,000 to 10,000 strategic weapons, with an undesirable ratio of land-based MIRVed (multiple independently targetable reentry vehicle) warheads to targets. Moreover, while the CFE will presumably achieve rough parity between the Warsaw Pact and NATO, the continuing level on both sides will not be much below the current NATO forces.

Accordingly, the West should move vigorously and promptly for much more extensive constraints. Strategic nuclear forces should be cut far more deeply (to 3,000 or below), MIRVed land-based weapons should be phased out, and mobility encouraged. The ultimate goal should be invulnerable forces on both sides with ratios of warheads to targets which will make any first strike futile and irrational.

Much more should be feasible with respect to conventional weapons. The next goal should be to cut forces and offensive weapons to at least 50 percent below the CFE levels, together with restraints on deployment and mobilizing which would give sufficient warning of any rearming to allow potential victims to prepare for effective defense.

Quite clearly, these negotiations will be complex and difficult even if both sides share the desire to develop a security regime which will be stable at low levels. That will be especially true with respect to

conventional forces, with the necessity to fix ceilings for individual states. Ideally, future CFE and START negotiations would be handled as a common effort to devise a stable security system, rather than as bargaining to extract the maximum concessions from the other side.

V

For the West, the present challenge is as great as that in the 1947–1955 period, though the stimulus is opportunity rather than threat. Yet responding effectively will be difficult for the allies. For forty years they have been managing the Alliance and making decisions within the fixed and familiar context of the Soviet threat and Cold War. Within that framework they have been able to compromise, resolve and paper over their differences in outlook, interests, and priorities. But now the political-military context is more fluid and less threatening. The issues they now face are far more basic: the future structure of Europe, changing relations with the USSR and Eastern Europe, a unified Germany, revising NATO strategy, and radical arms control. These issues must be handled in such a way as not to disrupt the Alliance, which will be important for many years to balance Soviet power and as a basis for wider Atlantic cooperation.

The usual NATO procedures are not well-suited for these tasks. The issues are too complex and could be highly divisive if not handled wisely. Bureaucratic caution and service rivalry will tend toward the least common denominator instead of fresh approaches.

The situation might benefit from a special study on the model of the Harmel Report of 1967. When the first steps of détente were eroding allied cohesion, NATO appointed a special committee headed by Paul-Henri Spaak to make a report on the future tasks of the Alliance. Its report, which was adopted by the Allies, set the framework for pursuing a dual policy of military security and détente, as complementary means toward “the ultimate political purpose of the Alliance . . . to achieve a just and lasting peaceful order in Europe, accompanied by appropriate security guarantees.”⁶

Now there appears to be a chance to approach that ultimate goal. The Alliance should commission a similar study of its future premises and goals and the agenda for moving toward them, in the new

conditions. Its report, which would not bind governments, could clarify the issues and make proposals which would assist the allies in reaching common policies and objectives.

Similarly, the effort to work out with the Soviet Union an eventual security regime will require innovative approaches not likely to result from the usual negotiating procedures. Recognizing this, Senator Sam Nunn has made an interesting suggestion to assist in this effort. His proposal is to establish an official group composed of experts from the Soviet Union and the West whose task would be to explore "revolutionary leapfrog advances in arms control." This group would jointly analyze arms control issues, seeking to arrive at consensus on basic conceptual approaches without committing either side. Their proposals would then be referred to governments to decide whether to attempt to negotiate agreements.⁷

This procedure would foster fresh thinking and exploration of the more radical approaches to a new security regime that are called for by the new situation. And since the expert group would not be committing governments, its members could tackle the issues more like a team seeking solutions, rather than as negotiators. As in Jean Monnet's metaphor, the experts would be sitting together on one side of the table with the problem on the other side, rather than negotiating from opposite sides of the table.

VI

To conclude, what then is the relation between the concepts and criteria of 1960 and those suitable for the 1990s? My focus has been on East-West relations and Europe.⁷ There, in a broad sense, the aims of arms control elaborated earlier are still valid and relevant. But in fact, the revolutionary changes in the political and military context give arms control an utterly new significance for the 1990s.

In 1960, the critical question was whether and how far hostile rivals could agree on measures for helping to reduce the risk of nuclear holocaust, moderating arms competition, and enhancing stability, despite their conflicting political purposes. Even in theory, the room for cooperation was very limited, though significant. The basic conflictual political framework was taken as a given. In practice the agreements achieved were modest in their contribution to these aims, with some exceptions like the ABM Treaty.

In the 1990s, with a wholly new political-military context, the clash of purposes appears to be largely attenuated, mainly as a result of changes in Soviet priorities and conceptions about security and Soviet interests, and the revolutionary shifts in Eastern Europe. Under these conditions the political constraints on cooperation are substantially relaxed or removed, the scope for arms control is vastly expanded: it can be one of the key instruments for reshaping future political relations. Hence, its function is very different from the earlier period.

In the previous era, the contributions of arms control were inevitably marginal. Now it can play a major role in building the new structures in Europe and in East-West relations if the Soviet Union, the United States, and the Europeans have the vision and initiative to exploit the new possibilities to the fullest.

ENDNOTES

¹See Jerome B. Weisner, "Comprehensive Arms-Limitation Systems," *Dædalus* 89 (4) (Fall 1960): 915–50.

²The eighteen are as follows:

- Five are intended to reduce the danger of nuclear war by mistake, such as those for the Hot Line (1963), Accidents Measures (1971), Risk Reduction Centers (1987).
- Six restrict the spread of nuclear weapons: to other countries (NPT, 1968), Nuclear Free Zones in Latin America (1967) and the South Pacific (1985), or to specific environments (Antarctic, 1959; Outer Space, 1967; Seabed, 1971).
- Three adopt partial bans on nuclear testing: Limited Testing Ban (1963); Threshold Test Ban, unratified (1974); Peaceful Nuclear Explosions, unratified (1976).
- Four constrain offensive or defensive nuclear weapons systems: SALT I (1972); ABM (1972); SALT II, unratified (1979); INF (1987).

In addition, there have been agreements dealing with confidence-building measures (1986, Stockholm), outlawing hostile acts to modify the environment (1977); and for cooperation, inter alia, on security (Helsinki Accords, 1975); and on outlawing biological weapons (1972).

³See Joseph S. Nye, Jr., "Arms Control and International Politics," *Dædalus* 120 (1) (Winter 1991).

⁴Gorbachev's "new thinking" on security is analyzed by Stephen M. Meyer in *International Security* 13 (2) (Fall 1988): 124–63, on which I have drawn.

⁵See Matthew Bunn, "Arms Control's Enduring Worth," *Foreign Policy* 79 (Summer 1990): 154–5.

⁶Report on "The Future Tasks of the Alliance," adopted 14 December 1967. NATO Final Communiqués, 1949–1974 (Brussels), 198–202.

⁷Buchan Memorial Lecture, IISS, 4 September 1989. Published in *Survival*, 32(1) (January/February 1990); 12.

⁸In the period ahead, the problem of nuclear proliferation, which I had not dealt with, seems certain to become a growing concern, especially in relation to the Third World.

Arms Control: Thirty Years On

I

THIRTY YEARS ON FROM THE FIRST *Dædalus* conference, we find ourselves in a curious situation. At the time of writing (September 1990) the formal seal has been signed on German unification within NATO. This ends a curious interregnum during which two German states have been ruled by Christian Democrats, but one has been pledged to NATO while the other has honored its obligations to the Warsaw Pact. A key part of the final deal has been an extensive German subsidy to the upkeep of the Soviet troops remaining in Germany and new accommodation for them back home.

An attempt is underway to conclude an agreement on Conventional Forces in Europe (CFE) by the end of the year. Progress here has been dramatic but is currently held up. This is in part the result of the familiar technical issues of what to count and how, but it also reflects the shifting ground under the negotiators' feet. Although in principle CFE involves twenty-three individual countries who happen to belong to the two alliances, in practice, the talks were organized up to the end of 1989 on an alliance-to-alliance basis. Now the original principle appears more valid. East Germany is coming under a NATO rather than a WTO heading. The Pact countries are toying with neutrality and the Soviet Union is starting to do its strategic calculations on the basis of standing alone. One does not have to look too far ahead to see a Soviet Union which has fragmented into a number of individual states, not all of which are natural allies with each other.

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If there is no conventional arms control then it may prove difficult to organize a wider Pan-European discussion in a recalled conference on Security and Cooperation in Europe (CSCE), which has hitherto been contingent upon the successful conclusion of a CFE treaty. Here military questions are discussed in conjunction with those which are more broadly political and economic.

By the time this article is published all this might have been resolved. Europe may have a new, agreed upon security system or else political and military processes will be taking their course outside of a clear framework. The point about this snapshot of a Europe in flux is to indicate the complex interdependence that can develop between arms control, diplomacy, and broader political and economic activity at times of fundamental change and to note that there is nothing in arms control theory which prepared us for this strange state of affairs.

It is of course not only arms control theory which failed to anticipate the upheavals which have been dominating European politics since 1989, especially since the collapse of the Berlin Wall on November 9. No branch of the study of international relations can claim credit for getting it "right." Even those who were aware of the stresses and strains in the Communist world could not appreciate the extent of the rot or the speed and nature of the 1989 collapse.

Yet there is a particular poignancy here for arms control in that on the eve of its greatest triumph its relevance is widely questioned and the political events which made rapid progress possible may now be moving so fast as to whisk the triumph away from its grasp. Many of the premises upon which arms control negotiations were based—a continuing alliance system backed by superpowers in which the possibility of war had diminished but not to zero—now appear invalid. Europe may not yet be free of the risk of violence. At lower levels this risk has increased. However, the likelihood of the set piece NATO/Warsaw Pact confrontation which has dominated the strategic studies and arms control literature for decades has become a contingency of only historical interest.

The situation in Europe is so unprecedented that it is not surprising that policy is having to be made in an ad hoc way in response to a rapidly changing situation. No model that would have appeared realistic and useful prior to 1989 could survive that year. Nonetheless, there is a real cause for complaint in the failure of the theory to

recognize the links between arms control and political change which have been evident throughout the past thirty years.

My focus in this article is on the political dimensions of arms control and, in particular, on conventional arms because those are the weapons most relevant to the sort of change recently witnessed. Although strategic nuclear forces have dominated both the theory and practice of arms control, conventional arms have also been the subject of regular discussion. My argument is that the strategic nuclear focus has encouraged arms control theory to concentrate on standards of stability within a bipolar military relationship and that this has been to the detriment of our understanding of conventional arms control, which has always been shaped by complex political relations. We thus lack a theory for a period of political transition.

II

The theory of arms control was a product of a cold war, which can be defined as an antagonistic relationship in which the potential for violent confrontation is contained, but not eliminated. In short, a key feature of a cold war is that it might become hot. The point at which this could happen is known as a crisis. Arms control is relevant if it is assumed that the state of the military relationship will be a decisive factor in whether or not a crisis might transform a cold into a hot war. The objective is therefore a military relationship that is at least neutral in a crisis and, at best, provides disincentives for both sides against initiating hostilities. This condition is described as stability. If stability is not achieved naturally (in which case there is no need for exceptional measures) then the theory prescribes how this can be achieved by cooperative measures.

Crisis stability is not the only objective described for arms control. Standard early definitions brought together "reducing the likelihood of war, its scope and violence if it occurs, and the political and economic costs of preparing for it."¹ However, these objectives can be in conflict. With nuclear deterrence the idea is to reduce the risks of war by raising its costs to unacceptable levels. There must be a hierarchy and, at the level of public debate, there has never been any suggestion that crisis stability should be subordinate to other goals. In the absence of a definitive test, the requirements of crisis stability can only be a matter of conjecture. It can always be argued that the

military relationship is not yet stable enough and that extra measures should be implemented just in case.

Nonetheless, a cold war which showed little sign of turning hot encouraged the view that the primary task of crisis stability was not too difficult and so secondary tasks became more important. These secondary tasks were related to war prevention. One example was arms race stability, a self-contradicting term if taken to refer to a race without competition, but best understood as cooperative measures designed to discourage racing. The underlying presumption is that arms races can contribute to war either by making it difficult to achieve crisis stability or by aggravating political tensions.

Another reason to avoid arms racing is that it wastes resources, and so arms control can be recommended simply as a means of saving money.² Other peacetime objectives might be as a way of signalling an improved political relationship by demonstrating an ability to negotiate constructively or mutual respect for each others' strength.

The general verdict on the achievements of arms control in terms of stated objectives has been, at most, modest.³ However, arms control should be judged as a negotiating *process* as much as a negotiated *outcome*. It can be a means of maintaining an active diplomatic relationship at times of tension, providing a forum for dialogue on military issues, a means of signalling shifts on broader political questions, and so on. The uses of the process do not even have to be cooperative. Slowing it down might indicate displeasure over some quite separate development. Proposals can be framed in such a way as to require the adversary to concede a political point unrelated to the formal substance. In domestic debate, the possibility of a negotiated agreement on mutual reductions argues against unilateral cuts or even in favor of acquiring military strength for bargaining purposes.

One thing all these objectives have in common is that they are essentially political. In discussing arms control, politics is often described as an *input*—as a matter of “will” in overcoming suspicion and “taking risks for peace,” or as a reflection of the atmospherics which can allow negotiations to prosper or flounder, depending on whether the political wind blows warm or cool. The *output* of arms control is commonly described as a more stable military relationship,

less competitive and serving as a drag rather than as a spur to war at times of high tension.

But negotiated adjustments to a military relationship can only be judged in terms of their political effects. The key test is their impact on decisions that might encourage a move from a cold war to crisis or a crisis to hot war. Critics of particular agreements often point out that offering excessive concessions betrays a weakness and uncertainty that might later be exploited, or that the new military relationship might best serve the adversary's doctrine. A presumption that "controlling the arms race" can prevent war may be no more than wishful thinking. Most serious analyses of the causes of war recognize a multiplicity of possible causes and are rarely able to identify an arms race as an operative, let alone a governing, factor.

A useful theory of arms control must, along the established lines of strategic theory, explain rather than take for granted how activity directed toward the military sphere affects the political sphere, in all the forms in which this occurs. To do this, one can distinguish the formal, normative connotations of the term from the great variety of informal purposes to which arms control activity is put. This suggests the following definition:

Formal arms control refers to the cooperative adjustment of a military relationship within a conflictual political relationship. *Informal* arms control refers to the uses to which formal arms control activity can be put to support unilateral policies.

III

The literature on arms control displays full awareness of its informal features, although they are often discussed as evidence of political irresponsibility. The prescriptive nature of the field has resulted in the literature being largely concerned with advancement of the theory and practice of formal arms control. In this section I will discuss some of the consequences of this preoccupation.

The origins of contemporary arms control theory can be traced back to the mid-1950s when it was recognized that attempting to agree on a complete prohibition of nuclear weapons was futile and that instead the course of wisdom was to make the best of a bad job by exploiting the deterrence value of these weapons.⁴

The implications of nuclear deterrence were still uncertain and controversial and this gave great intellectual vitality to the emerging discipline of strategic studies, of which arms control theory was a by-product. There was everything to play for in nuclear policy and arms control offered a novel and ingenious set of policy instruments. The key insight was that when designing strategies it was wise to consider the effect they might have on the adversary. There was no objection to conducting a cold war; just an emphasis on the advantage to all concerned in ensuring that it did not get too hot.

The great period of arms control theory, marked by the first *Dædalus* volume, came at the end of the most intense cold war period which concluded with the 1962 Cuban Missile Crisis.⁵ For that brief period it appeared that the world's major powers might teeter on the brink of a precipice indefinitely. Disaster would be avoided only by devising sophisticated mechanisms to allow them to stay on the edge without toppling over. There was the prospect of regular crisis but also of regular management. Arms control would facilitate this management by helping to create crisis stability.

An alternative and less nerve-racking approach was for all concerned to move back from the edge so that crisis management would become unnecessary. Such an approach—*détente*—was adopted around 1963 (although most explicitly during the Nixon Administration), and while there were occasional tense periods there was never a return to the precipice. The political antagonism settled down. The boundaries of postwar Europe were effectively fixed in practice in 1961 as a result of the Berlin crisis, and eventually diplomacy caught up. So the situation remained until the political status quo was unhinged in 1989. The crises for which arms control theory was designed never—thankfully—materialized.⁶ Without a crisis to test the theory, the theorists developed “scenarios” which naturally became more geared to the elaboration of key propositions rather than the description of developing contingencies.

These propositions were largely concerned with superpower nuclear weapons, designated *strategic* (suggesting that all other types of arms were less-than-strategic and so less important). The particular concern was to deny any tangible advantage to a preemptive nuclear attack. At the time of the first *Dædalus* conference, this was a source of genuine anxiety. This was the aftermath of Sputnik, the time of the “missile gap,” when it was still feared that if one side obtained a small

force of ICBMs before the other, such a temporary advantage might serve as the basis for a desperate gamble.

If both sides were able to maintain a nuclear threat against the other under all circumstances, then that would remove this risk. Some retaliatory forces might be able to survive a first strike and not be blocked by a comprehensive active defense. This was really all that arms control theory required and it was achieved almost as soon as the requirement was stated. The basic thrust of early arms control theory was to push the strategic balance to a position it attained quite quickly and quite naturally.

Activity since then has concentrated on measures to preserve this situation: special status for SLBMs and prohibitions on Ballistic Missile Defense. Additional twists have been found through explorations of the possible subversion of an apparently stable balance by technological breakthroughs, clever tactics, organizational misadventure, or escalation from the conventional level.

The analysis usually proceeded on the basis of abstracted scenarios, devoid of consideration of political dynamics, and as a result, assigned credibility to potential instabilities which were frivolous, contrived, or secondary. The nuclear balance appeared as a sort of gyroscope upon which the equilibrium of the whole international system depended, thereby exaggerating the importance of every nuance. Its self-contained nature meant that it was barely related to the political relationship that would generate any crisis.

By the 1980s the limitations of the dominant model were eased through the inclusion of considerations relating to decision making and the two alliances.⁷ However, many of the limitations of the basic model still held because the starting point remained, the need to prevent a massive nuclear exchange between the two superpowers. This was the terminal point of an escalatory process, so the process itself was examined to identify those points at which it might get out of control.

The prescriptive logic ensured a schizophrenic character to arms control practice. The output was geared to a potential catastrophic breakdown in relations, so if it was to endure such hostility, it must meet demanding verification requirements. Yet if there was to be any output at all, especially one that could be verified, then there had to be a modicum of goodwill and all the paraphernalia of prolonged negotiations, regular high-level contact, and occasional summits.

To cooperate on such matters was in itself an important statement of a shared interest. By extending the area of cooperation then perhaps the intensity of the antagonism could be reduced—and so too, the likelihood of a crisis and the requirement for stabilizing measures. This produced the paradox that the more arms control appeared necessary the harder it was to achieve, and the easier it was to achieve the less it was necessary.

To the extent that cordial discussion on these matters became a political good in its own right, success could be demonstrated less by reference to the criteria of crisis stability but more by more overt, readily comprehensible concepts such as *parity*. Such an objective derived its meaning from what it said about the existing state of superpower relations rather than its support for crisis management should relations deteriorate in the future. Yet even as parity came to the fore in the early 1970s, it was considered necessary to justify it—through such formulations as *essential equivalence*—in terms of perceptual requirements of future crisis management.

If the objective was to convey a positive message on the state of the superpower relationship then the nuclear bias to arms control made sense in that it was amenable to a negotiated adjustment. Only two states needed to be involved; there was never a problem gaining high-level attention, the boundaries for a negotiation were reasonably clear, the two arsenals were similar in important respects, and compelling theories were available to guide the activity.

Even then negotiations proved to be protracted and the results meager in terms of the investment of time and energy. The effort was thwarted by the needs of the prime participants to take into account the interests of other states,⁸ or distractions in the bilateral relationship, areas of grayness in the boundaries and asymmetries in the arsenals, and disagreement over the validity of the guiding strategic concepts.

IV

Conventional arms never appeared so susceptible to negotiated adjustment. Compared with nuclear negotiations, the participants would always be more numerous, the boundaries more arbitrary, the forces more varied, the theories less coherent. It is therefore not surprising that the arms controllers' initial interest in conventional

forces was not so much to restrict but to encourage them, as a less escalatory means of dealing with a crisis that showed signs of going critical. A competitive development of nonnuclear means appeared as a corollary to the cooperative preclusion of nuclear means. Advocating conventional rearmament in the name of arms control indicated the extent to which the exercise was geared to a particular model of the optimum feasible military relationship.⁹

Conventional forces were advocated in preference to reliance on nuclear threats. But what about the role of the conventional military relationship in crisis management? The most serious crisis imaginable would occur in Europe and the first military actions would be with conventional forces. The silence of the original theorists on this score is eloquent. Although by 1960 there had been considerable discussion of conventional arms control at the United Nations, some of which is referred to in the *Dædalus* volume, this appears as part of the background noise, connected with the "old thinking" of general and complete disarmament. Indeed, some of the most serious early conventional disarmament proposals were casualties of the American reappraisal which first introduced the modern concept of arms control in 1955. After the death of Stalin the new Soviet leadership appeared to move closer to the British and French position on disarmament, but the Americans then moved away from this position when they became convinced that the complete elimination of nuclear stockpiles was unobtainable, and everything else had to be reassessed in that light.

During the second half of the 1950s conventional force levels seemed to be shrinking on their own accord to the levels discussed in the proposals earlier in the decade as nuclear weapons grew in doctrinal importance and exhibited the greater technological dynamism. The lack of evident necessity for arms control in this area was matched by the technical difficulties it would pose.¹⁰

One notable exception to this general disinterest was Hedley Bull.¹¹ He observed that thinking in this area made a sharp distinction between the nuclear and the nonnuclear and assigned the greater importance to the former. He offered a number of explanations for this. First, nuclear strategy cast doubt on the importance of conventional forces which were widely believed to be obsolescent.¹² Second, the conventional sphere was naturally contained by the existence of nuclear weapons. A conventional arms race is limited by competition

for funds with nuclear forces. Third, once conventional war went beyond a certain stage, then it would invite escalation to nuclear war. He therefore accepted that there was a trade-off between the two and that nuclear measures had to have the highest priority:

We are much more afraid of nuclear than of conventional war, and should perhaps be prepared to accept greater probability of the latter in exchange for lesser probability of the former. This is ground common to the doctrines of nuclear disarmament, limited war and deterrence.¹³

He was unwilling to preclude conventional disarmament entirely as a distinct activity, but he was aware of all the technical problems in this area and insistent on its subordinate aspect.

The chief object of arms control in the field of conventional warfare is to diminish the likelihood of *nuclear* war.

There was thus little *formal* theory of conventional arms control. Even when negotiations began, proposals tended to apply the prevailing theories of nuclear arms control to the conventional sphere. Thus, the first serious negotiations in this area—the Mutual and Balanced Force Reductions talks (MBFR)—were notionally about achieving parity at the conventional level at a time when SALT was preoccupied with parity at the strategic level. The more recent talks on conventional forces in Europe (CFE) have been concerned with theories of surprise attack at a time when notions of crisis stability are more influential in START.

Yet the nuclear theories were inappropriate. The need to address surprise attack capabilities was understandable. Whereas the Americans had translated their own historic trauma of Pearl Harbor into the form of a nuclear first strike, the Soviet Union's own trauma of the German conventional invasion made them highly sensitive to land offensives. In practice—as much was done to address these concerns through confidence-building measures—which addressed exercises and the movement of forces—as attempts to distinguish between offensive and defensive conventional armaments. An especially inappropriate concept was that of “balance.” An equality of forces at the nuclear level might symbolize mutual respect based on mutual vulnerability, but at the conventional level such equality could be highly unstable in that it could provide no guide to the outcome of armed conflict. All attempts to construct a formal

military balance that would be of any help in negotiations inevitably left out a series of factors—including timing, terrain, reserves, supply lines, training, morale, and so on—that could be decisive in combat.

No theory was developed of the relationship between conventional force and crisis. The guidelines area in MBFR reflected negotiating convenience as much as the likely participants in and the boundaries of a European war. The inclusive approach of CFE assumed that warfare would be a set piece confrontation across the length of the East-West divide. The idea of a crisis as a time of stresses and strains in alliance systems, in which military forces would be moved to confirm commitments, issue warnings, demonstrate resolve, did not enter the theory.

V

As it was only in the late 1980s that conventional arms control developed any serious momentum, it has never been well treated in the literature, and is barely mentioned in many books on arms control.¹⁴ Those that look at the history of MBFR have a sort of world-weariness to them which is missing from the writings on nuclear arms control.¹⁵

Yet while conventional arms control has been insignificant in its formal aspects, it has been far more important in its informal aspects. The political objectives served by the exercise have not been those on the formal agenda.¹⁶ Many of the ideas in the late 1950s and early 1960s, especially those associated with the Polish Foreign Minister Adam Rapacki (of which the prime feature was a nuclear-free zone), were bound up with broader ideas about disengagement in Central Europe and the special status of Germany.

The advantage of MBFR for NATO was that it showed the member countries working together on détente as much as on military preparedness, and drew East European countries into a dialogue, rather than passing all communications through Moscow. A major plus was in providing a means of forestalling unilateral American cuts by arguing against wasting an opportunity to achieve similar cuts in Soviet forces. And when Leonid Brezhnev conspired with the US Administration, by timing his Tiflis speech accepting the principle of negotiations just before a crucial Senate vote on the Mansfield Amendment, he was indicating that Moscow recognized

US forces as a stabilizing factor in Europe as well as using the concession to gain Western agreement on a Conference on Security and Cooperation in Europe. The formal negotiating objectives were thus, for all concerned, supplementary to these informal objectives.¹⁷ In formal terms MBFR was a complete waste of time; in informal terms it was a great success. The informal aspects of MBFR, as indeed with earlier conventional arms control proposals, were largely geared to the maintenance of the political status quo in Europe. It never proved possible to introduce radical political change through the arms control back door (for example, Western acceptance of the division of or any special status for Germany). These issues had to be addressed head-on.

Even now at a period of political transition, the impression is more that arms control is being left behind.¹⁸ It has been disoriented by the collapse of the Warsaw Pact and unilateral moves to force levels well below those envisaged in the putative treaty. The purposes for which CFE is now recommended are largely secondary and relate to the educative and confidence-building consequences of working together on an inspection regime or on the task of introducing a degree of institutional consistency, order, and predictability into a confused and disorderly situation. However, the situation may become so disorderly and unpredictable that even these secondary tasks may not be fulfilled.

As the Soviet Empire implodes, a whole series of issues have arisen for which there has been no intellectual preparation. I may have missed the articles or books which discussed problems of command and control for a superpower in the process of fragmentation, or the role of armed forces in sustaining two alliances in a cooperative and nonantagonistic relationship, and similar issues with which we may now need to become familiar.

In retrospect the range of options discussed in the arms control literature has been extraordinarily limited. The panoply of diplomatic instruments available to consolidate improved relations among states or to prevent tensions from being exacerbated is considerable (although most with mixed records of success). There are various forms of demilitarization and disengagement, of communication, and of security guarantees. To the extent that cooperative military policy has revealed the necessary political sensitivity over the past few decades, it has been only through the informal aspects of arms

control. There may still be a formal strategic nuclear agenda for the future, although its relevance to wider political developments is likely to become increasingly marginal. The most relevant experience to be salvaged from years of arms control theory and practice for the fluid political situation in which we now find ourselves probably comes from the secondary, informal aspects of those secondary, inconclusive formal negotiations on conventional arms.

ENDNOTES

¹Thomas Schelling and Morton Halperin, *Strategy and Arms Control* (Washington, D.C.: Pergamon-Brassey, 1985), 2.

²N.B., Bernard Brodie: "If arms competitions are not in themselves dangerous, which is to say significantly provocative of an inclination to war, they are certainly costly. An international agreement which succeeds in limiting that competition is an important and welcome way of limiting those costs. Naturally, one does not wish to save money at the cost of a significant impairment of security, but the role for intelligent arms control is precisely to find and exploit instances where there is no such conflict." From "The Objectives of Arms Control," *International Security* 1 (1) (Summer 1976): 33.

³Albert Carnesale and Richard Haass: "What emerges above all is the modesty of what arms control has wrought." From "Conclusions: Weighing the Evidence" in Carnesale and Haass, eds., *Superpower Arms Control: Setting the Record Straight* (Cambridge: Ballinger, 1987), 355.

⁴In the drafting of the UN Charter the term "disarmament" had been rejected because of the unfavorable prewar connotations of this term. The phrase "regulation of armaments" was adopted instead. "Arms control" entered the official US vocabulary in 1955 to signify a shift in policy away from attempts at total elimination of nuclear weapons combined with the balanced reduction of conventional arms to strengthening deterrence and guarding against surprise attack. See Bernard Bechhoefer, *Postwar Negotiations for Arms Control* (Washington, D.C.: Brookings Institution, 1961).

⁵Some spoke of a second Cold War in the first years of the 1980s. See Fred Halliday, *The Making of the Second Cold War*, (London: Verso, 1983).

⁶The Cuban Missile Crisis might have supported some of the contemporary theories of crisis management, but it bore no relation at all to thinking about arms control, except for the need to think about how one's actions might appear to the adversary.

⁷For example, Paul Bracken, *The Command and Control of Nuclear Weapons* (New Haven, Conn.: Yale University Press, 1983).

⁸There was always a tension between extended deterrence and arms control, and this was never resolved. The 1987 Intermediate Nuclear Forces (INF) Treaty was a product of relaxing the demands of extended deterrence at a time when it was

assumed (because of Soviet intransigence) that this did not matter. When Mikhail Gorbachev saw the opportunity created by the zero option, he was able to set in motion a damaging NATO debate. As it happened, the inherent contradictions of nuclear deterrence turned out to be slightly less acute than those of the Soviet Empire.

⁹It is of note that the *Dædalus* volume was the one in which Henry Kissinger announced his conversion from limited nuclear war to conventional defense as the best doctrine for NATO.

¹⁰The verification of manpower reductions offered major difficulties: "... a large element of unrealism in talk of force-level cuts, whether supervised by an inspectorate or not. Manpower, once trained, is of military use, whether in uniform or civilian clothes; a man in the reserves is obviously subject to quick call while he remains in good physical condition." William Frye in Don Brennan, ed., *Arms Control, Disarmament and National Security* (New York: Braziller, 1961), 82.

¹¹Hedley Bull, *The Control of the Arms Race* (London: Weidenfeld & Nicholson, Institute for Strategic Studies, 1961).

¹²He noted the contrary view that the self-neutralizing features of nuclear warfare would make conventional armaments more important, but felt it too early to judge between the two views.

¹³Bull, 114.

¹⁴For example, see Carnesale and Haass.

¹⁵One of the few books in the 1970s to address conventional arms control in a broader context was J. I. Coffey, *Arms Control and European Security* (London: Chatto & Windus for IISS, 1977). There is now a more substantial literature: Jonathan Dean, *Watershed in Europe: Dismantling the East-West Military Confrontation* (Lexington, Mass.: D. C. Heath, 1987); and Robert Blackwill and Stephen Larrabee, *Conventional Arms Control and East-West Security* (Durham N.C.: Duke University Press, 1989).

¹⁶For a rare appreciation of the relationship between MBFR and the political context, see Jane Sharp, "MBFR as Arms Control?" *Arms Control Today* 6 (4) (April 1976).

¹⁷Lothar Ruehl: "At no time ... had a clear distinction been drawn between the possible requirements of a self-supporting MBFR arms control agreement on the one hand, and those entailed by a more general MBFR accord for the promotion of détente." "The Slippery Road of MBFR," *Strategic Review* (Winter 1980).

¹⁸See Lawrence Freedman, "The Politics of Conventional Arms Control," *Survival* 31 (5) (October 1989).

Johan Jørgen Holst

Arms Control in the Nineties: A European Perspective

THE ARMS CONTROL PERSPECTIVE

A RMS CONTROL CONSTITUTES A PERSPECTIVE on international relations, on the mediation of the security dilemmas inherent in the structure of international society and their interaction with political conflicts, vested interests and technological developments. It is predicated on the proposition that states do not only compete, they have shared interests as well. Arms control as a policy involves capitalizing on those interests. Open ended competition could produce undesirable net outcomes for all parties concerned. The pursuit of unilateral military advantages could produce undesirable pressures for precipitous action in a crisis. The arms control perspective reflects possible norms with respect to the management of an interdependent world.

The arms control perspective has taken hold. It has become a matter of central concern to policy makers in East and West. It has received less attention in the developing world where the issue of arms competition has been viewed more in terms of global equity than military stability, more in terms of constraining or exploiting the East-West competition than of mediating their own. Until recently arms control has proved more successful in the field of nuclear weapons than with respect to conventional armaments. The existence of nuclear weapons has lent urgency and imperative to the task of averting catastrophe, shared catastrophe. They have altered the

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human condition as well as the condition of international relations. From the point of view of human ethics, man was confronted not only with the potential choice of protecting interests and outlooks on human organization by means which could destroy the fruits of generations of human labor; he also had to contemplate options which could deprive future generations of life in the way we have known it till now. Genetic and ecological uncertainties of the effects of nuclear war produced new moral dilemmas. The tragedy of the human condition appeared to have darkened. However, nuclear deterrence also seemed to offer an alternative to the wars of the past. Willingness to run some, albeit incalculable, risk of disastrous outcomes could so constrain the willingness of the adversary to challenge vital interests as to significantly reduce the chance of war. Prudence and caution could become the real custodians of peace as nations buckled their safety belts in the vehicles of nuclear deterrence.

THE "NEW THINKING" OF 1960 AND OUR PRESENT

Basically the concept of arms control was a twin sister of the concept of nuclear deterrence. It focused on the stabilization of military relations rather than on the elimination of arms. Disarmament became but a subset of a much broader field of policy. The intellectual breakthrough came at the end of the 1950s, more specifically in the wake of the Surprise Attack conference in 1958.¹ The *Dædalus* volume of 1960 devoted to "arms control" provided an intellectual bank for the "new thinking." Two of the books from the period still stand out as the principal texts on the subject of arms control; those by Hedley Bull, and Morton Halperin and Thomas Schelling.² The new thinking of 1960 has become the conventional wisdom of 1990. Arms control has become institutionalized through national bureaucracies and "permanent" negotiations, through civic action groups and professional associations. In the process of institutionalization, technicians tended to replace thinkers, operations research replaced political analysis; purpose and method tended to merge. Conceptual innovation has been largely absent since 1960. However, as we enter the 1990s the momentous events which broke up the postwar order in Europe compel another round of new thinking with the aim of relinking arms control and political purpose. The technical issues will continue to constitute important aspects of any arms control arrange-

ment, but the purposes to be served must be viewed from the perspective of directing and framing changing political relations rather than stabilizing a fixed set of relations. Arms control needs to be brought up-to-date with the post-Cold War era.

In the new thinking of 1960, arms control was viewed as an integral part of a prudent defense policy; it was not confined to negotiated agreement between adversaries. With the institutionalization of arms control, negotiations have tended to gain the upper hand, frequently in juxtaposition or in opposition to defense policy. Hence, the twains have tended to drift apart rather than meet. In the new circumstances of reduced budgets, restructuring of forces, and the search for new doctrines, the original perspective from 1960 should be accorded a more prominent role in the policy-making process.

The new thinking of 1960 was essentially American and, by extension, Anglo-Saxon. It reflected the pragmatic "can-do" and "new beginning" propensities and rhythms in American political culture. Europeans have tended toward more systemic, cynical, and diffident approaches. With the dismantlement of the Cold War and the reconstruction of the political order in Europe, more composite thinking will be required. American thinking about arms control has reflected the geopolitical circumstances of the United States. It has had to grapple with the dilemma of extended deterrence, of extending credible assurances to allies while reassuring the American public concerning the danger of hooking American cities to the defense of Europe. It has had to contend with the fear of allies, particularly European allies, that arms control was a smokescreen for disengagement or a vehicle for making Europe safe for limited war. In the dialectic modulation of deterrence and defense, Europeans pressed for maximizing deterrence while Americans frequently appeared equally concerned about options to be used in the event that deterrence should fail. The trade-offs will be viewed differently in the new Europe which is now emerging. The new thinking on arms control focused on the bilateral East-West conflict and, more specifically, on the core dyad of Soviet-American relations. The framework resembled that of a two-person game. The reemergence of Europe as an actor rather than an arena, and the momentous upheavals in Central and East Europe on the threshold of the 1990s called into question the basic framework of assumptions and postulates which shaped the new thinking on arms control in 1960. The bipolar world is waning and a more composite order is in the

making. The arms control perspective must shift away from stabilizing confrontation to managing transformation.

The concerns of 1960 focused on nuclear weapons, and most specifically, on strategic nuclear weapons. The compelling need to avoid catastrophe, particularly inadvertent catastrophe, formed the outlook and priorities of the new thinking. Nuclear weapons were still viewed as a potential means of political influence, of compellence in a competitive world. Nations could be brought to the brink of war in a competition of risk taking; the military dispositions could constrain political decisions, lock them on to tracks leading to inexorable but unwanted destinations. Preemptive instabilities could relegate governments to the role of spectators to their own decisions. August 1914 cast long shadows into the world of the 1960s. Barbara Tuchman's *The Guns of August*³ suggested to many the canonical outbreak scenario by analogy.

The idea of inadvertent war was closely connected with the idea of deliberate exploitation of competitive advantage, of the differential in outcome between striking first and second. This perspective was influenced by Albert Wohlstetter's work on the relative vulnerability of the US strategic bomber force to a disarming attack.⁴ Deterrence was not inhered in the relative numbers of available forces in peacetime, but in the expected balance following the first volley. Stability would prevail if the expected outcome was relatively insensitive to who went first and if both sides possessed an expected capacity to inflict unacceptable damage in retaliation after having suffered and "absorbed" a first blow. The notion of a "delicate balance of terror" constituted an intellectual overhang on the threshold of the missile age.⁵

Thirty years later the implicit model of a nuclear duel seems curiously removed from the real world of decision making and international relations. The stakes would be so awesome and the uncertainties so forbidding that moral man would shy away from such an immoral universe. Nevertheless, accidents and miscalculations remain possible. Nations have learned about the limits of nuclear weapon power, that nuclear weapons have limited convertibility. Nuclear weapon states have failed to translate their possession and disposition into political influence. They have denial power, however, tending to neutralize the potency of the nuclear arsenals of competing powers. Nuclear possession may have come to look less enticing, as the norm of nonproliferation became codified and increasingly accepted. The dire predictions of

The National Planning Association⁶ of the late fifties were denied by subsequent developments. Nevertheless, the nonproliferation regime is far from robust and shows increasing signs of wear and tear as the world enters the 1990s.⁷

ARMS CONTROL AND DETERRENCE: THE ENTANGLING CONNECTION

The arms control outlook of 1960 focused on the need to protect the deterrent, not by active but by passive means, by dispersal and hardening. This may have contributed to the “large” numbers of strategic forces which were justified or even mandated by the concept of assured destruction.⁸ Deterrence, of course, was not easy to translate into force requirements. How much was enough tended to be determined more by marginal costs of expected target destruction than by assessments concerning the calculations of governments. From the perspective of 1990 the balance of terror seems much more robust than it did to the new thinkers of 1960.⁹

Arms control made the most progress in dealing with the consequences of the missile build-ups of the 1960s and 1970s.¹⁰ SALT (Strategic Arms Limitation Talks) appeared to “cap the volcano” while START (Strategic Arms Reduction Talks) now appear to have resulted in a significant build-down of the overkill capacity resulting from the competition for mutual assured destruction. The dramatic reversal of perspectives and policies embedded in the emerging START I Treaty fails to stir the imagination and excitement of societies. The pursuit of credible deterrence begot the notion of the incredulity of nuclear war. Nuclear war did not seem a justifiable means to continue political rivalry; the character of nuclear war, its very essence, militated against inclusion in a rational calculus, broke the chain linking ends to means. War itself became the enemy linking political rivals in a common struggle against the results of their own making. War had become divorced from politics; arms controllers started to argue for dislinkage rather than compellence.

The concept of deterrence was central to the new thinking on arms control in 1960. It favored the offensive. Defense was considered a threat to deterrence, an obstacle to be overcome, rather than an alternative to mutual assured destruction. In the first great debate about missile defense, the ABM (antiballistic missile) debate of the

late sixties,¹¹ the new cult of the offensive favored the deployment of means to overcome defenses rather than limitations of strategic forces buttressed by ABM. MIRV (multiple independently targetable reentry vehicle) became the means to so expand the offensive capacity as to render active defenses rather meaningless. However, MIRVs tended to reopen fears about the premium of the first strike and, at the threshold of the 1990s arms control efforts appear destined to focus on how to put the MIRV genie back into the bottle. Such efforts will prove extremely difficult as MIRV constitutes a significant force multiplier enabling lesser nuclear weapon states to field significant strategic forces. Ironically, the United States decided to deploy a limited ABM system as a hedge against smaller missile powers after having let MIRV out of the bottle. Soviet-American negotiations subsequently focused on limiting ABM deployments in order to preserve the system of nuclear deterrence; Soviet and American views on stability converged.

However, this convergence was disrupted by a renewed debate in the United States about active defenses and the launching of SDI (the Strategic Defense Initiative). The context of the new debate of the late eighties differed significantly from that of the late sixties. MIRV had proliferated, the size of the strategic forces had grown significantly, Soviet and American views on deterrence tended to converge, and the ABM Treaty was in place and constituted a key building block for the regime of strategic arms control. SDI threatened to expand the arms competition into one of the last commons of the Earth and hence introduce a panoply of uncertainties concerning the future configuration of the Soviet-American military competition. It seemed to many, this author included, to be cheaper, safer, and sounder to reduce the offensive capacity by mutual agreement than by competitive protection. SDI threatened to expand rather than confine and constrain the arms race at a time when strategic weapons seemed less and less relevant to the management of international relations.¹² Europeans worried about the systemic implications of SDI, about the impact of differential security. In addition, we could witness another difference in political culture, between European pessimism concerning human folly and American optimism concerning technological fixes, between European acceptance of vulnerability and interdependent security as a result of sharing a continent among adversaries and

American nostalgia for invulnerability and independent security on a continent without rivals.

Strategic arms control gradually became a major vehicle for shaping Soviet-American relations. However, as the professionals struggled with the herculean task of nailing down all the technical details of limitation and verification, events in the Soviet Union so changed the political framework that treaty making assumed some of the qualities of a scholastic exercise. START I may be the last comprehensive treaty about strategic arms control, and may be succeeded by a management process of supplementary clarifications and confidence-building measures. The arms control negotiating machine has become too cumbersome and the treaty constructions too complex to provide instruments for the management of political and technological change.

As the threat of Soviet conventional attack in Europe retreated into the annals of history, the requirements for extended deterrence changed and the United States could move away from an emphasis on capacities for striking quickly. It is possible to envisage regimes of mutual deterrence which do not emphasize first or early use of nuclear weapons, particularly strategic nuclear weapons. The post-START regime could be one of residual deterrence based on small, well-protected strategic forces designed to constitute weapons of last resort, an insurance against the reconstitution of old threats or the emergence of new ones. However, the compelling need to save money is likely to militate against a treaty-based restructuring of American and Soviet strategic forces in accordance with theoretical notions of stability.

The new thinking of the 1990s could transcend the paradigm of the new thinking of the 1960s, reopening the vision of 1945, of a world of common security and international management, a world of international control of nuclear weapons (the Baruch Plan) rather than the world of mutual deterrence. The new thinking could bring us back full circle to the presumptions of the UN Charter. The realism of the 1960s may be succeeded by a new idealism of the 1990s. The time has come for arms control to be reunited with political purpose and vision.

The urge to transcend the condition and imperatives of mutual deterrence would not be put to rest. Deterrence did not seem to exhaust the human capacity for ingenuity and compassion. It consti-

tuted a temporary expedient rather than a permanent solution, a means to an end. With the waning of the Cold War and the prospects for political reconstruction in Europe, the need for novel concepts and outlooks, for another round of new thinking about arms control, became apparent. Part of the intellectual groundwork was made by the Palme Commission on Disarmament and Security Issues which launched the concept of common security.¹³ Another component was provided by an investigation of options for defensive defense. Cooperative security arrangements could possibly transform and modify the system of deterrence, integrate it into a more complex pattern of international relations. At the same time the waning of the Cold War tended to reduce the predictability and calculability which flowed from the clearly drawn line of political division buttressed by military dispositions. Instead, a new volatility appeared to be in the making as the shadows of ethnic conflict and communal strife became visible in the emerging political landscape of Europe, as Europeans were confronting the return of history rather than its end.

CONVENTIONAL ARMS CONTROL AND POLITICAL ORDER IN EUROPE

Much of the arms control attention of the 1990s will be focused on Europe, on modelling and structuring a new security order. Originally, the Vienna-based negotiations on conventional forces in Europe (CFE), sought to stabilize the military “infrastructure” of the East-West confrontation by agreements on preferential reductions of those elements in the force postures which contributed most to the capacity for surprise attack and sustained offensive action. They were firmly rooted in the categories and conceptual framework of 1960. They were predicated on the continued existence of the East-West military confrontation in Europe and sought ways and means to reduce the chance that the dynamics of that confrontation would escape political control in a crisis. Stability replaced manpower reductions as the overriding objective as CFE succeeded the stalemated MBFR (Mutual and Balanced Force Reductions) negotiations. Attention focused on preferential reductions of tanks, artillery, armored fighting vehicles, combat helicopters, and combat aircraft.¹⁴

Moscow remained concerned about troop levels, probably because of an economic need to reallocate scarce resources in favor of the

civilian economy in order to contribute to the success of perestroika. The United States felt the pressure from a large budget deficit, but it was only under the impact of the upheavals in Eastern Europe that the issue of manpower received priority attention in the West. The perspective was no longer stability of the confrontation or reassurance concerning US commitments to Western Europe, but protecting the Eastern European revolutions against the reimposition of Soviet imperial control. The overriding political perspective became that of getting the Red Army out of Eastern Europe. The revolutions in Eastern Europe happened on Europe's way to a CFE agreement. They changed political perspectives and priorities. Arms control became an instrument for creating a new architecture rather than a supporting pillar for the old one.

The mutual commitment to seek equal and reduced Soviet and American troop levels in Central Europe (195,000 men) facilitated a process of reconstruction. It changed the basic parameters of the postwar security order which had revolved around the implications of Soviet conventional superiority in the heart of Europe and NATO's inability (or unwillingness) to pay the cost to match it. This commitment seemed unlikely, moreover, to define the endpoint concerning troop levels. It served to initiate a process. As a result of bilateral negotiations Moscow agreed to take her troops out of Hungary and Czechoslovakia by June 1991. Memories of Budapest in 1956 and Prague in 1968 continue to linger in the national consciousness of these two Central European countries. Soviet withdrawal symbolizes the end of an imperial era, the abolition of the Brezhnev doctrine, and the adoption of the "Sinatra doctrine," according to which the Eastern European countries do it "their way" in terms of social, economic, and security organization. The rapid pace of events led to a postponement of personnel reductions; CFE I was confined to equipment reductions.

Central to the Soviet military and political position in Europe was the presence of some 380,000 troops in East Germany (GDR). That state has ceased to exist. United Germany will belong to the West and will be a key member of the European Community and of NATO. Two political issues concerning the future political order in Europe were at the core of the diplomatic maneuvering with regard to the military status of Germany: Soviet (and Russian) fears of exclusion from, and German fears of discrimination in the New Europe. Those

fears had reciprocals in European fears of Russian chauvinism and German *Alleingang* and, by almost paranoid conjecture, their possible combination in another "Rapallo." European history continued to haunt visions of the future.

The image of an international society imposing an inexorable logic of foreign policy imperatives, of a tragic security dilemma caused by structure rather than choice, continued to permeate political assessments. However, it competed with a second image which focused on the character of states and their relations. International relations were no longer confined to interstate relations, but had become increasingly a matter of relations among bodies politic; the character of the societies would determine the nature of the relationships. The revolutions in Central Europe were the result of societies conquering their states. Democratic order makes a difference, particularly stable democratic order.

The European Community heralded the demise of the territorial state, the end of the Westphalian order predicated on a balance of power among territorial states, and the emergence of a new order based on a broader conception of community than the nation-state: a response to the transnational challenges confronting political institutions. They include security in the nuclear age, the environment, internationalization of production and finance, human rights, technological innovation and so on. Community Europe also appeared capable of absorbing and projecting the diversity, including the ethnic and cultural diversity, of the European civilization, of devolution as well as supranational construction. It provided a framework for an inclusive community modifying and tempering the exclusive character of the nation-states which formed the community. In view of the ethnic mosaic and resurgent pressures on the territorial states whose political borders do not and cannot coincide with the ethnic borders in Europe, the European Community seemed to indicate a way out of the old traumas and contradictions.

On the threshold of the 1990s, Europe was not only confronted with the challenges and opportunities resulting from the end of the Cold War, but also with the coming of a new style of international relations among the nations of the Northern Hemisphere, with the emergence of a new ethos. The image of war and conflict as rooted in the nature of human beings had few adherents. The potential for violence is present but it competes with potential for cooperative and

peaceful pursuits, for tolerance and compassion as well as intolerance and indifference. Human propensities will be channeled and shaped by political culture and institutional frameworks.¹⁵ The revolutions in Eastern Europe had an "Americanizing" impact on European polities, and created a growing belief in a new beginning. However, lingering doubts and pessimistic caveats were also present as Europeans embarked on their voyage to a new security order, to a destination largely unknown in a vessel which could easily capsize on the reefs of self-fulfilling prophecy. Arms control policy had to be developed and managed within a novel framework of political trends and ambitions, in the context of community building.

The security objectives which could be served by arms control in Europe encompass a broad spectrum, infinitely wider than the paradigm provided by the confrontation which shaped the old order. They include reassurance against reconstitution of the old threat of invasion, possibly by the provision of early warning and firebreaks, the protection of boundaries, the prevention of new hegemonies, the containment and resolution of local conflicts, the protection of political reconstruction, and money saving. The objectives may pose, in part, conflicting requirements.

THE EMERGING CFE REGIME

The CFE negotiations apply to Europe from the Atlantic to the Urals and, it might be added, from the Barents Sea to the Mediterranean. They are no longer confined to the forward zone of confrontation. They encompass Germany and they include all of the European parts of the Soviet Union. The United States and Canada participate fully and the CFE regime applies specifically to their stationed forces in Europe. In the course of the negotiations the Soviet Union attempted to regionalize arms regulation in Europe by confining and restricting the commitments to specific zones where the Soviet military preponderance would weigh heavily and would tend to fragment the security system created by NATO. Arms control is not only about crisis stability it is also a currency for structuring political influence. With the coming of German unification Moscow no longer attempted to evict the Americans from Europe, seeking instead their cooperation as underwriters of the emerging order, preferably on a symmetrical and preeminent basis.

Some Western European countries have been searching for regional differentiation in order to prevent the heartland power, the Soviet Union, from concentrating her forces in or against particular areas. A composite solution to the problem of political geometry emerged dividing the area of reductions into four concentric areas around a core area made up of Central Europe, the Benelux countries, and Denmark. The regime of regulations is built upon a set of rules with regard to collective ceilings, sufficiency, stationed forces, subceilings, and exchange of information. The sufficiency rule is designed to provide insurance against military hegemony for any single power. No single state is allowed to possess more than about 30 percent of the collective holdings of any treaty-limited item. Many complex and ostensibly technical issues had to be solved in relation to counting rules, particularly the classification of aircraft and the rules of access to controlled depots containing treaty-limited items. Countries have engaged in the traditional game of disarmament, of attempting to eliminate or curtail the advantages of the adversary and protect their own when defining the categories of treaty-limited equipment. This was particularly evident in relation to aircraft where Moscow wanted to preserve and protect her heavy investments in air defense fighters, a natural impulse of the heartland power, while the rim land states of Europe buttressed by their island-power protector, the United States, were concerned about the potentials for conversion to offensive missions, particularly in view of the possibility of future modernization with multirole fighters. The Western powers wanted to include land-based naval aircraft of which the Soviet Union has many while, for a long time, Moscow had insisted on counting carrier-based aircraft of which the United States has many. Washington would not have its capacity for global power projection constrained by the regional arms control regime in Europe. The Soviet Union had to give up a basic structural advantage for CFE to succeed, namely, conventional military preponderance in Central Europe. That preponderance became untenable in the context of the revolutions in Eastern Europe, and those revolutions in turn became inevitable the moment Moscow was willing to give up its military preponderance.

Gorbachev had to concentrate on restructuring the Soviet Union in order to preserve its status as a great power and, indeed, in order to salvage a political construction, the legitimacy of which was eroding

rapidly because of repression and inefficiency. In addition, the security calculus changed in Moscow as the marshals of the Great Patriotic War vanished from the scene. The outlooks of the new military leaders were shaped by the period of Soviet ascent to the status of a nuclear superpower. Security could no longer be viewed as the function of a territorial buffer enabling the Soviet Union to defend against invasion outside the borders of the homeland or to mount a threat of invasion against her adversaries from forward positions. No longer could security be identified with the capacity to occupy territory. The territorial perspective had been altered by the reality of nuclear weapons, which, in combinations with long-range "delivery" systems, had blown the roofs off the territorial states. Security had become conditioned by the interdependence forged by nuclear weapons and constituted in a system of nuclear deterrence.

The Soviet military presence in East Germany provided the forward garrisons for the Red Army in Europe. However, as the revolution swept away the communist regime and opened the gates for unification, those garrisons could no longer be viewed by NATO as the potential spearhead of a Soviet military offensive into Western Europe. Germany and the Soviet Union worked out the deal by which Moscow accepted Germany's sovereignty, including the right to join the alliance of its choice in accordance with the CSCE Final Act. Moscow obtained assurance against exclusion from Europe by Germany's commitment to negotiate a comprehensive treaty about cooperation in a variety of fields, including economics and security. Reassurance was provided by a German reaffirmation of the renunciation of nuclear, chemical, and biological weapons. Germany was ready to give a binding declaration in the CFE negotiations that her troops will be reduced to 370,000 men within three to four years. Within the same timeframe the Soviet Union would withdraw her 380,000 troops from the eastern part of Germany. As long as the Soviet troops remain NATO structures will not be introduced in the former GDR. Clearly Moscow expects NATO to refrain from stationing foreign troops in the former GDR after the Soviet withdrawal. In the words of Mikhail Gorbachev: "We take it that no other foreign troops [will] appear there; here we have trust and are aware of the responsibility of this step."¹⁶ Chancellor Kohl has confirmed that no foreign troops or nuclear weapons will be introduced into the former territory of the GDR. That part of Germany

will obtain a military status similar to that of the northernmost county in Norway, Finnmark.

The political order in Central Europe had been completely recast in the course of less than a year. The emerging order was aided into being by arms control negotiations. In this instance arms control was not a separate or separable objective but rather an element in a process of comprehensive linkage. Arms control became a vehicle for political change rather than a means for the stabilization of a political stalemate. Events forced the perspective to shift away from the traditional search for force ratios, to force one of restructuring, weapons profiles, and dislocations which could lead to stability. Traditionally, policies on conventional arms control in Europe had sought to stabilize the status quo. On the threshold of the 1990s they sought to change it.

FIVE CATEGORIES OF ARMS CONTROL MEASURES

The future role of arms control in Europe is likely to be clearly tailored to the agenda for political reconstruction. We may distinguish among the following five categories of measures. The first category embraces what we shall call *architectural measures*, that is, arrangements designed primarily to shape the political geometry of Europe. Here we are likely to see a revived interest in regional arrangements as confidence-building and threshold-raising measures. The new states of Central Europe need to be woven into the pattern of the European order. It is possible that Poland, Czechoslovakia, Hungary, Austria, and the five eastern Länder of Germany could constitute a security zone wherein the presence of foreign troops, nuclear and chemical weapons would be prohibited. That status could be affirmed and guaranteed by the Conference on Security and Cooperation in Europe (CSCE). Such a security zone could provide reassurance for the Central European countries against external military pressure, for the Soviet Union against a westward extension of NATO, for the NATO countries against Soviet attempts to reestablish an imperial position in Europe, and for Germany against singularity.

Architectural arms control could also revive the old idea of nuclear-weapon-free zones in Europe. The Nordic States are all parties to the Nonproliferation Treaty and none of them permit the

stationing of nuclear weapons on their soil. They have all insisted that a Nordic nuclear-weapon-free zone must be embedded in a European arrangement aiming to reduce the nuclear threat in Europe. They have also been unwilling to negotiate such an arrangement bilaterally with the Soviet Union, or to include the Soviet Union in the zone for fear of creating an unbalanced regime which would in fact be dominated by Moscow. Nevertheless, they have sought a Soviet *quid pro quo*. It is possible to envisage construction of a nuclear-weapon-free zone in the Nordic area which could provide a mechanism for linking the Soviet Union to the new security order in Europe while conceding a special independent status to the Baltic republics by letting Estonia, Latvia, and Lithuania join a Nordic nuclear-weapon-free zone. In this way the construction could become a vehicle for political rearrangement as well as reassurance by linking the processes of European and Soviet reconstruction. Such a zone could be formally approved by the CSCE, obliging member-states to observe and respect the nonnuclear status of the expanded Nordic area. The Soviet Union would be one of the guarantors as a CSCE state. Similarly, a breakup of the Soviet Union and its possible transformation into a confederation containing at least one major nuclear weapon state, the Russian Federation, and, possibly, several nonnuclear republics could open up for a broader nuclear-weapon-free zone linking, for example, the Ukraine, Byelorussia, Moldavia, and so on, to a central European zone. Nuclear-weapon-free zones tended to collide with the imperatives of collective defense in the era of confrontation. They could provide vehicles for political integration in the era of reconstruction in Europe.

The second category of arms control measures in Europe is *structural measures*, or those which constrain the size and composition of the military establishments. The overriding perspective is that of reassurance concerning intentions and incentives. The limits of German forces should not be imposed limits which could become rallying points for possible future revisionist forces (the Versailles syndrome). Nor should they discriminate against any particular country (the singularization syndrome). Therefore, the limits on German forces were embedded in a broader CFE regime. The stability of such arrangements depends on their perceived legitimacy. The CFE negotiations are between the members of the two alliances confronting each other in Europe. The CFE I agreement covers major

equipment. The next round, CFE IA, will cover manpower, stabilization measures, and open skies regimes. They are still negotiations among the twenty-three aligned states. However, the following phase, CFE II (beginning in 1992), will be expanded to include all thirty-four (or thirty-five when Albania joins) CSCE participating states in order to avoid legitimating waning structures (Warsaw Pact) and old hegemonies. They could focus on national ceilings as well as on force structures, particularly on limiting weapons, formations, and deployments which provide offensive capacities. There is a dilemma here: Collective ceilings could legitimate a perpetuation of the Warsaw Pact as a Soviet-led military alliance even after Soviet military withdrawal from Eastern Europe. Germany's acceptance of a numerical ceiling on her forces points toward national ceilings for force levels. However, the European NATO members have always insisted on collective ceilings in the past in order to preserve future options for collective forces. Tension could be building up between the follow-on CFE regime and NATO's interest in multinational forces. Collective ceilings on treaty-limited equipment would apply to the whole of Europe (the Atlantic to the Urals or ATTU) while the subceilings would apply to the concentric zones. The CFE regime is a carefully designed regime of interlocking rules. When one or more of the rules are changed the balance of the total construction is at stake.

The overall arms control regime will be shaped by the interplay of negotiated measures and decisions on defense policy. The latter perspective, which was so important in the new thinking of 1960, is likely to play an increasingly important role as budgets and force levels come down. Formations are likely to be smaller and more mobile, adjusting to the architectural need to dismantle the infrastructure for the confrontation in the Cold War. The former emphasis on readiness is likely to diminish and patterns of training and exercises will probably be recast.

For many countries in Europe it will be important to fashion a regime which is consistent with the maintenance of a system of national conscription as such systems are viewed as essential democratic mechanisms and safety valves reflecting concepts of citizenship and relations between society and the state. However, these types of systems tend to generate fairly large forces, the international consequences of which must then be mediated through restructuring the length of national service and the pattern of training. Difficult

trade-offs may have to be made between considerations of military efficiency and political exigency.

The concept of arms control impact assessment could be broadened with a renewed emphasis on arms control as a component of defense policy. The choice of particular weapons systems tend to drive organization and doctrine and should therefore be viewed in that broader framework. Emphasis on defense postures with a convincing defensive accent, so-called defensive defense, would focus attention on such relations. It should be kept in mind here that it is a question of emphasis rather than a choice among absolutes. Most military forces have innate capacities for both offensive and defensive use.¹⁷ However, the organizational structures within which they will function, the doctrines developed for their potential use, and the patterns of training will shape perceptions of the relative emphasis on defensive and offensive operations.

Such interplays could become more salient by the negotiation and/or observation of *operational measures* constraining the peacetime operations of military forces in Europe. They could involve such constraints as limits on the size, structure, and frequency of military movements and exercises and on military activities in national border areas. The purpose could be to lessen the impact of military activities on political relations and to reduce fears of preparations for a reconstitution of an offensive posture.

A fourth category of arms control measures would be *data exchange measures* concerning force planning and routine military activities in peacetime. The purpose would be to enhance predictability and break the spirals of mistrust which can be generated by the need to second-guess and hedge against the possible future programs and dispositions of other powers. Greater transparency has already been created by the CSCE system of confidence-building measures involving notification and observation of military exercises in Europe.¹⁸ An expanded system of mutual observation could reduce the possibility of erroneous assessment of opposing military activities and implementation of readiness measures in tense situations. Thomas Schelling's idea of standby teams for mutual surveillance¹⁹ could receive CSCE consideration as a multilateral instrument. The CSCE could also build on the project which was launched by the League of Nations in the between-the-wars years by publishing an Armaments Yearbook, containing the information which the CSCE nations have

agreed to exchange. The data could be expanded and computerized so as to provide an up-to-date data base about military expenditures, military formations, major weapons holdings and acquisitions, procurement and force planning objectives, as well as military research and development projects based on nations' reports according to a standard format. CSCE nations could also have a right to a certain annual quota of checks by challenge in the same way that the CSCE confidence-building measures regime has been expanded to include a right to challenge inspections of maneuvers on short notice. The CSCE annual calendar of military exercises could be included in the CSCE Armaments Yearbook or data base.

The fifth category of arms control measures would be *declaratory measures*. They could provide common guidelines concerning perspectives on security. The joint declaration by the member states of the Warsaw Pact and NATO, to the effect that they are no longer adversaries, constitutes a form of arms control which has flourished in the wake of the revolutions in Eastern Europe. The Western alliance has declared that it will never be the first to use force, and invited other CSCE states to join in a declaration to refrain from the threat to use force against the territorial integrity and political independence of any state. Proposals for multilateral and bilateral nonaggression pacts have been made by several states. The Kellogg-Briand Pact no longer seems to be casting shadows of warning into the diplomatic landscape in Europe. Nations are eager to articulate the general norms of a new cooperative security order in Europe. More specific rules of engagement, such as a mutual commitment to no first use of nuclear weapons,²⁰ is more contentious, although it has become the *de facto* norm, verbally camouflaged references to nuclear weapons as weapons of last resort notwithstanding. The credibility of such declarations would depend largely on associated measures affecting the number, structure, and dispositions of nuclear weapons in Europe.

NUCLEAR WEAPONS AND ARMS CONTROL IN EUROPE

NATO's policies of deterrence have oscillated between requirements for dissuasion and reassurance. Nuclear weapons have played the role of compensating for conventional inferiority and imposing shared risks of unacceptable damage and uncertainty concerning the

outcome in the event of war. They were always associated with an implicit threat to lose control. The threat to use them was imbued with a threat to leave quite a lot to chance. Nobody could have high confidence in the ability to control the process of events once they had passed the nuclear threshold. Theater nuclear forces would force an attacker to disperse his forces depriving him of the option to concentrate superior force. However, the danger of inadvertent conflict or escalation would remain. Readiness measures and the vulnerability of the nuclear weapon depots or launchers to direct fire could invite preemptive attacks in a crisis and lead to escalation in war. Nevertheless, peace was kept in spite of the high level of military confrontation and political tensions and stakes associated with many turns of the Cold War. It is difficult to prove causal linkage between peace and nuclear deterrence, history is not in the habit of revealing its alternatives; however, conventional deterrence had proved rather unpersuasive in Europe in the past. Nuclear deterrence survived in part because it seemed to work, and as long as it did there was no compelling reason to fix it.

In addition, NATO's nuclear weapons in Europe, particularly in Germany, always played political functions over and above those of affecting calculations concerning the costs and risks of battle. They served to reassure Europeans about the American commitment to the defense of Europe, made them share in the dangers of nuclear escalation. Furthermore, they tended to even out the difference in status between the nuclear weapon states and the nonnuclear weapon states in Europe. As the confrontation winds down and cooperative undertakings expand in Europe, the perspective of reassurance may come to dominate that of dissuasion. War fighting perspectives are likely to be replaced by a focus on residual dangers, by existential deterrence based on the dissuasive effects of the mere existence of nuclear weapons. It should be recalled in this connection that in most of the European NATO countries, including frontline countries, the credibility of the American guarantee has not been conditioned by the presence of a large number of American troops or nuclear weapons. The moment the perception of a clear and present danger disappeared, the willingness of societies to accept the risks and burdens of nuclear deployments tended to disappear as well. Social cynicism and suspicion about the motives, priorities, and competence of govern-

ments with whom the strategy of nuclear deterrence is inevitably associated erode the legitimacy of nuclear weapons.

In any event the postures will change. The large numbers of nuclear weapons associated with the deployment of nuclear-capable artillery are likely to be removed. NATO has already proposed a “third zero” solution for nuclear artillery shells in Europe. With the removal of the forward line of confrontation through Central Europe, nuclear artillery no longer had targets to cover; they could only threaten the territories of countries seeking closer association and cooperation as democratic polities. Furthermore, short-range nuclear land-based missiles would seem to fare no better than nuclear artillery as relevant instruments of deterrence in the new circumstances. Members of the two alliances are committed to start negotiations about short-range nuclear forces (SNF) now that the CFE agreement is signed. They are also likely to produce a “fourth zero” agreement concerning short-range missiles. Moscow would, in any event, be forced to withdraw SNF units and depots from Eastern Europe as the rest of the forces withdraw.

NATO’s future theater nuclear posture in Europe is likely to be confined to aircraft systems. The numbers will diminish as existential rather than operational perspectives come to shape modulations of the posture for deterrence. The emerging issue is whether to modernize the system by introducing stand-off missiles—tactical air-to-surface missiles (TASM)—instead of free-fall bombs. The issue was to be postponed to avoid linking it with the process of German unification and Soviet troop withdrawals from Central Europe. The need for a high level of readiness in forward positions has disappeared and will diminish further with Soviet troop withdrawals from Central Europe. The weapon carriers can rotate among NATO countries thus mitigating the problem of singularity for those countries hosting the special munition depots. The key question will be whether such depots should remain in Germany. The most important aspect of this question is whether the Germans will decide themselves or will the conclusions be imposed from the outside, by allies or former adversaries. From the point of view of the stability of the emerging security order in Europe, German alignment is surely more important than nuclear depots in Germany. Arrangements can be made for the reconstitution of a nuclear presence in the event of a crisis, recognizing, of course, that the threshold will be high since

governments will be as concerned about not rocking the boat as about hedging against an ambiguous threat.

The long-term consequences of a total nuclear withdrawal from Germany are likely to be determined primarily by the degree to which the differential in status between the nuclear weapon states in Europe and Germany plays an active and visible role in the policies of the former. If Britain and France should emphasize their nuclear weapon status as a counter to German economic preponderance, or if the Soviet Union should do so in the wake of the withdrawal of her troops from Central Europe to preserve a preeminent voice in the affairs of Europe, the absence of a direct German involvement in NATO's nuclear posture could stimulate a future debate about a German nuclear weapon program with all its potentially disruptive ramifications. Such a process of reassessment could also be brought about by a future pressure due to nuclear proliferation in areas outside but within weapons range of Europe. The arms control issues involved are related more to architectural than operational considerations, to the stability of a political order rather than the stability of military postures in a crisis.

NAVAL ARMS CONTROL: AN EMERGING ISSUE

NATO is a maritime alliance dependent on sea lines of communication for the integrity of its security structure. In the years ahead the *scale* of the threat to those transatlantic sea lanes is likely to diminish as the size of the Soviet submarine fleet decreases due to block obsolescence of large classes of submarines. For the task of cutting sea lines of communication, numbers remain important and may be compensated to some degree by qualitative improvements. Furthermore, dismantlement of the forward confrontation on the continent of Europe and the withdrawal and demobilization of large numbers of Soviet ground forces and aircraft would reduce the *urgency* of early reinforcements via the sea lines of communication.

In the context of a stable Central Europe with low tension and no clear and present danger of military conflict, the Northern and Southern flanks could become new flash points of tension, particularly if the naval competition were to continue unabated and even intensify in those areas. The US Navy is likely to be less affected by budget cuts than the Army and the Air Force, but it nevertheless

seems highly unlikely that it will be permitted to retain anywhere near fourteen aircraft carriers. It is unclear how severe cutbacks in carrier task forces would affect forward maritime strategies, peacetime dispositions, onshore facilities, and so on. Nevertheless, the countries of the North and South in Europe could come to worry about differentiated security, about being abandoned or sucked into a pattern of competition over which they will wield little influence. Security arrangements in Central Europe are likely to encompass a broad array of arms control measures constituting a regulated regime. A sense of vulnerability, singularity, and exposure could grow on the flanks in the absence of naval arms control.

Hence, pressures for naval arms control are likely to grow within NATO and opposition thereto may prove unsustainable in the long run. The process has, in fact, started already with confidence-building measures, encompassing a series of bilateral incidents-at-sea agreements between the Soviet Union on the one hand and the United States, Great Britain, France, Germany, Italy, Canada, and Norway on the other. It could be supplemented by a multilateral agreement with more general provisions.

Naval arms control should be approached from the perspective of the particular nature of naval forces and the medium in which they operate. Arms control measures should be consistent with the principle of freedom of navigation, of *mare liberum* in the Grotian tradition. The oceans are beyond the jurisdiction of the territorial state, but competing uses of ocean space will increase the need for rules and regulations, for operational measures. Furthermore, naval arms control regimes should be fashioned so as not to support creeping coastal state jurisdiction. Particular measures should reflect also the asymmetric dependence on the seas of, for example, NATO and the Soviet Union. Symmetric limitations could have asymmetric and destabilizing consequences. Naval forces are inherently mobile and global in reach. Hence, it is unlikely that regional arrangements for naval force limitations would constitute stable regimes. The net effect of naval arms control measures should be assessed, finally, in the context of combinations with territorial arms control as well as agreements concerning strategic forces, as elements in broader security structures.

Incidents-at-sea agreements aim at the prevention of unintended conflict and escalation of incidents by prescribing certain operational

procedures. As the oceans are beyond the sovereignty of states, naval forces intermingle in a way which land forces do not during peace time. Incidents-at-sea agreements are consistent with the principle of freedom of navigation but recognize that competing uses of the same waters for naval exercises and fleet movements could result in unintended conflict. They build on "rules of the road," naval traditions, developed over the centuries. They could be supplemented by a regular *dialogue* about naval doctrine and naval deployments among the major naval powers for purposes of avoiding misperceptions and misunderstanding and in order to enhance sensitivity to the concerns and interests of the other actors enabling all of them to plan more sensibly in cognizance of the composite interests involved. Increased predictability and sensitivity to the concerns of affected actors would seem particularly important during periods of profound change in international relations. Such a dialogue could also encompass an exchange of information concerning naval rules of engagement.

Another building block could involve procedures for and commitments to prior *notification* of major naval exercises and movements. The purpose would be to reduce the option for using such activities to exercise political pressure on coastal states—gunboat diplomacy—and to reduce the fears of the latter that naval activity may serve such purposes. Certainly, notification could serve as a means of underlining "messages" conveyed to coastal states by the naval powers; however, if the naval powers were obliged in addition to submit an annual calendar of naval exercises, the opportunity to exert pressure in specific situations would diminish. Furthermore, the confidence-building regime could be buttressed by agreements on *mutual observation* of major naval exercises. Such observation takes place today on the basis of tacit mutual tolerance of surveillance from aircraft and naval vessels. Agreed-upon procedures could contribute to greater transparency, reduced fear of surprises, and increased ritualization of regular exercise activities. The agreed procedures could apply to observation from aircraft and naval vessels, but the parties could be encouraged also to invite observers onboard their own naval vessels during exercises.

Operational constraints are already embodied in the rules concerning innocent passage. Limits on access to specific bodies of water, however, are likely to prove differentially discriminating in relation to the interests and positions of the coastal states. Soviet proposals for

limiting naval access to the North Atlantic would favor the naval power with home ports on the seas in question (i.e., the Soviet Union) and discriminate against the local coastal states dependent on assistance from distant naval powers.

A final category of naval arms control involves force limitations. Attention could be focused on those elements in the naval force postures which constitute threats to the principal elements of overall stability. It could involve limitations on oceangoing attack submarines which constitute a primary threat against the integrity of the sea lines of communication as well as the sea-based nuclear deterrents. Limitations on oceangoing attack submarines could facilitate and strengthen agreements on limiting strategic missile submarines and ground forces in Europe. They could involve considerable money saving as the need for antisubmarine warfare forces would diminish. Such forces account for a very large portion—possibly as much as two-thirds—of NATO's total expenditures on naval forces. Most of the modern oceangoing attack submarines, particularly those with nuclear propulsion, are in the Soviet and American inventories. Reduced antisubmarine warfare forces could enhance the survivability of reduced numbers of strategic missile submarines and hence facilitate reductions beyond START I levels.

Another structural measure could involve the elimination of all nuclear ordnance from surface naval vessels. Such a measure would appear to be in the American interest since it would favor the superior naval power and deny the inferior one the option of using nuclear weapons to compensate for conventional inferiority. Moscow's interest in such a regime derives from an overriding concern about nuclear threats against the homeland, from the aircraft carriers and nuclear-tipped sea-launched cruise missiles (SLCM). It would be easier to verify a regime which limited nuclear ordnance than one which focused on dual-capable delivery systems. By the same token, total elimination of nuclear ordnance from surface vessels would be easier to verify than any other numerical limit. Such proscriptions would essentially remove the political problems created by visits of naval vessels belonging to nuclear weapon states to the ports of nonnuclear weapon states. Removing nuclear weapons from aircraft carriers would raise the issue of Soviet land-based naval bombers. Their limitation and denuclearization would have to be assured as part of a nonnuclear naval regime, by an extension of the START

agreement or the CFE agreement on aircraft. Strategic nuclear weapons in dedicated submarines are subject to limitations in the START process. SLCMs constitute a growing concern to states with extended coastlines and shallow territories. The states of Northern Europe are likely to view the issues involved differently from those of Central Europe: for the former nuclear SLCMs constitute a potential source of competition and tension in Northern waters which could bring them into the vortex of international conflict, while for the states of Central Europe they may constitute an alternative to onshore deployments, a means to remove the nuclear deterrent from the worried concerns of society.

More far-reaching limitation regimes could attempt to restrict naval *tonnage* (compare with the issue of throw weight in regard to strategic missiles) and to affect the *composition* of the navies of the major naval powers (compare with the limits on capital ships and aircraft carriers of the Washington Naval Treaty and in relation to heavy and light cruisers in the London Naval Treaties). It is possible also to envisage agreement on force *ratios* among the major naval powers as well as rules in regard to modernization. The desirability of such limits is much more questionable and, in any event, they belong to a rather distant future. It could be useful, however, to consider past experiences as a prelude to an analysis of future possibilities.²¹

THE BROADER VIEW

The European perspective on arms control in the years ahead will focus on arms control as an agent of political change, as a management tool in a period of transition. The Conference on Security and Cooperation in Europe (CSCE) will constitute the institutional framework for the development of an arms control regime. As the situation in Europe ceases to project images of clear and present dangers, attention will focus more on uncertainties and the unpredictable turns and consequences of the breakup of the last imperial system in Europe. The potential reemergence of ethnic conflict and communal strife as sources of conflict which may escalate to become international conflicts could stimulate interest in preventive and ameliorative instruments, like peace-keeping forces,²² within the CSCE framework. But uncertainties are not confined to developments in Europe. The world outside is likely to enter the European

scene with novel and broader challenges. It is already apparent that relations between the European the Moslem civilizations are entering into another dynamic phase. European security is linked inextricably with the political volatility and demographic dynamics of the Middle East and the Maghreb. The proliferation of nuclear weapons, chemical weapons, and missiles constitutes a challenge not only to stability in the Southern Hemisphere, it harbors potential threats also to European countries and it may impact on future perceptions of military requirements in Europe.²³

ENDNOTES

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¹⁷For an analysis of how the ambiguity of the distinction defeated the disarmament negotiations under the League of Nations, see Marion William Boggs, *Attempts to Define and Limit "Aggressive" Armaments in Diplomacy and Strategy* (Columbia, Ohio: University of Missouri Press, 1941).

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¹⁹Thomas C. Schelling, "Arms Control: Proposal for a Special Surveillance Force," *World Politics* 13 (1) October 1960: 1–18.

²⁰For analysis see John D. Steinbruner and Leon V. Sigal, eds., *Alliance Security: NATO and the No-First-Use Question* (Washington, D.C.: The Brookings Institution, 1983).

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Arms Control in a Revolutionary Future: Europe

P RESENT AMERICAN CONCEPTIONS ABOUT the utility and efficacy of arms control policies face their greatest challenge in the need to secure the future of post-Cold War Europe. Revolutionary changes have now transformed the political and military landscape of Central and Eastern Europe, and have undermined most of the assumptions on which Western arms control policy and military strategy have been based since the Kennedy Administration. The nature, even the identity, of the adversary is now blurred; the East-West axis no longer summarizes either the causes of tensions or the probable avenues for negotiation or solution. The threat of attack, or probable causes for attack are both far less likely and far more limited than before. Open for debate are the continued size and role of national military forces and the continuing relevance of alliance military structures, truly questioned perhaps for the first time since 1949. The pace of change in every country and at every level surpasses political understanding, let alone past analysis about appropriate force reductions, verification methods, or cheating penalties.

In this heady environment of political change, it is no longer enough to pursue the classic goals of arms control enunciated by Schelling and Halperin in the first *Dædalus* volume on arms control in 1960. It is no longer necessary to limit American goals to those of peacetime prudence and wartime prevention; to limit through formal negotiation and agreement, the testing, the deployment, or the quantity of weapons in order to reduce the risks of war and to control

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the pace and costs of an uncontrolled arms race. Negotiation itself now seems an almost counterproductive instrument for the limitation of capabilities. Critics complain of the slow pace, the bogging down of successive negotiating rounds, the excessive legalism almost sure to be superseded in the last hectic moments. Others see that the cumbersome negotiating processes of the past decade have magnified intraalliance squabbling, provided bargaining incentives for delay, and rewarded the obdurate.

It is the argument of this essay that the building of a new European security system will be the first test for a new, expanded concept of positive arms control. It must allow for new evolutionary definitions of military stability at lower levels of immediate risk, and for the fostering of increasing political confidence and cooperation among all European states, the United States, and the Soviet Union. It is in the interest of the United States to develop this concept and the expanded range of implementing instruments it will require as quickly as possible, both to undergird the critical transition phase in Europe over the next several years and to prevent destabilizing developments in the longer term.

Moreover, the challenge will be simultaneously to adapt to and to further transform the new international politics of Europe. In the short run, arms control efforts will provide an indispensable political umbrella as well as providing for step-by-step reductions in deployed military capability. Present arms control negotiations on conventional forces in Europe (CFE) of the twenty-two nations of NATO and the Warsaw Pact and the more broadly cast CSCE (Conference on Security and Cooperation in Europe) talks involving the twenty-two plus twelve neutral and nonaligned European states offer unique opportunities to create a transitional security structure. The interim regime over the next several years will accept the past alliance lineups as still valid for organization and implementation efforts; it will also still rest on the active (if reduced) military presence of both superpowers in European security arrangements.

But in the longer run, perhaps only in a few years, the political basis will be new and Pan-European. There will be no Warsaw Pact and, at best, a transformed, far less military NATO; there will be overlapping political and economic organizations built upon the existing European Community; there will be the evolving CSCE structures, and perhaps others. There will not only be the enduring

challenges of European political identity and the renewed ethnic/nationalist tensions of a dynamic, unfrozen Europe, but also the uncertainties and realignments possible given the growing preeminence of a united Germany, the unclear fate of a fragmenting Soviet Union, a domestically absorbed United States, and the continuing disadvantages (real and self-imposed) of the East European states. And the goal must be to relate arms control as an instrument of state compromise to the assurance of peaceful European political change, progressive stability, and beyond—bilateral as well as multilateral, economic, political, and, perhaps only secondarily, military.

This essay will attempt to sketch some but not all of the dimensions of a new positive political concept of arms control and the critical challenges to be met. It will deal first with the legacy of the past, the political pressures and constraints that have circumscribed the impact of the classical arms control approach in Europe since 1960. It will then turn to the immediate future, particularly to the role classical arms control concepts may play in the foreseeable transition phase. It will end with a series of possible watchwords for the search for cooperative security and peaceful political change.

ARMS CONTROL IN THE EUROPEAN CONTEXT 1960–1989

The record of Western attempts to pursue classical “preventative” arms control in Europe from 1960 to the present is mixed. Europe from the beginning has posed some of the greatest challenges to the precepts of what I will call *classical arms control policy*: the American search since 1960 for technical solutions; for approaches that sought, in the absence of political agreement and trust between East-West antagonists, to limit both the risks and the costs of arms races and nuclear weapons. Europe has been the area of the most inextricable intertwining of political and military balances, and has held the greatest political stakes for both superpowers and medium powers. It was, after all, the political-military stalemate in discussions of disarmament in the Europe of the 1950s that gave considerable impetus to the “new thinking” embodied in classical American arms control policy and the innovative essays in the original *Dædalus* volume. Until the last half-decade, arms control agreements along classic lines have been few and reflective of global US-Soviet agreements to limit the risk of accidental nuclear war and to contain the

dangers of nuclear proliferation. Indeed, in the West, the pursuit of arms control negotiations has increasingly become as least as great a problem in alliance management within NATO as an approach toward the avoidance of war and the limitation of destruction should war come.

In the 1980s there have been significant new arms control achievements: the Intermediate Nuclear Forces (INF) Treaty and, in a different way, the steady expansion of the CSCE accords, particularly through the Stockholm agreements on confidence-building measures (CBMs). Yet each also departed significantly from the precepts of classical arms control in both form and content. Rather than merely the reduction of capability and risk, the INF agreement posited the elimination of an entire weapons class. The Stockholm agreement limits on exercises and procedures for notification and inspection suggested that critical tasks were to change political perceptions and to develop mutual political confidence; only then would reductions be possible or meaningful. Moreover, the Stockholm CSCE suggested the primacy of a “community” interest in the political conditions on which arms control stability rested. Economic security and the protection of the rights of individuals were also to be included in the definition of European security. There were also legitimate stakes, not just for the East-West adversaries and their allies, but also for the neutral and nonaligned states.

Why has classical arms control achieved so little in Europe over the last four decades? Explanation for the failures in the West can be found in the arguments of West European governing elites as early as the 1960s. At a fundamental level, these NATO allies rejected the American (or more specifically, the Kennedy Administration’s) assumption that significant progress in controlling the arms race in Europe could be made independent of political progress toward overcoming the deep political and ideological differences that divided East and West. American proposals on technical arms control based on military force ratios or the precepts of theoretical deterrence models were of some interest; efforts to deal with the “manageable” hardware issues were thought to be possibly more useful in the short run. But fundamental security in Europe would only be marginally enhanced. Arms were politics among adversaries but especially among allies. Arms control was foreign policy, not as in the Kennedyesque definition, the limited obverse of defense policy.

It was not that Europeans did not understand the arguments of American strategists and arms controllers. Controlling the risk of war, controlling the destructiveness of war was, in this view, susceptible to technological developments, to the nature of communication among adversaries and the levels of particular types of weapons systems. But these were thought to be secondary in a Europe where the principal threats to stability were political, and the principal bulwark for security was an alliance with the United States embodied in high levels of stationed American forces and a complete spectrum of nuclear weapons. Except for brief periods in the early 1950s and again in the early 1960s, war was thought unlikely by both elites and populations alike. But to elites of both the Left and the Right, any war meant the destruction and collapse of all European society.

For all but the most powerful NATO allies, therefore, arms control negotiations and agreements were to be judged in terms of their impact on the American alliance and national political status. If SALT I brought an improvement in US-Soviet ties at no cost to the American alliance or to the preservation of the Western European status quo, it was to be welcomed. A Limited Test Ban Treaty (LTBT) or a Nonproliferation Treaty (NPT) represented a securing of the existing political hierarchy and reassurance of American involvement in Europe, although both proved partially objectionable—to France and West Germany respectively—in terms of the limitations these imposed on national political flexibility.

CSCE and INF posed harder and more direct choices. But the primary issues in the alliance debate were not the specific military outcomes or even the significance of the tensions reduced for the costs paid. They were rather: the political status accorded the West (and, increasingly, the East) European states; their independence of political maneuver vis-à-vis the United States, if not the Soviet Union; and the changes in the basic NATO bargain and the American nuclear guarantee of European security that Washington either demanded or allowed to happen in the course of negotiations or in the agreement itself. Last and hardly least, arms control negotiations were increasingly a “good thing” in European electoral terms whether or not agreement was imminent.

For Britain and France, despite technological sophistication and rhetoric couched in military terms, the game was the same—only more intensely political. At stake was political status—the right to sit

at the top table, the claim to national nuclear independence or special relationship, the assurance of their share in the control of German destiny. Both chafed at the essentially bilateral focus of classical arms control and the continuing need to accede to a negotiation schedule dictated by the American domestic agenda, Britain more diplomatically and successfully than France. Their interests involved bargains to be struck with Washington, or secured by Washington against Moscow's claims for British and French reductions. British and French forces were to be compensated for, but formally excluded from SALT I; in INF, only exclusion was necessary. In CFE, Anglo-French demands were more specific: American assurance for the preservation of national production capability and commercial industrial advantage from the rigors of verification; the exclusion of any nuclear capable systems; even for France, the figment that CFE involved "no alliance-to-alliance negotiations." In each, the general objective was defense of the political status quo—in Europe as on the world stage—vis-à-vis allies more than adversaries.

The Federal Republic of Germany represented a special variant on the theme of political security as opposed to arms control. Throughout the 1950s and most of the 1960s, successive Bonn governments saw potential arms control negotiations, let alone possible agreements, as political threats. Adenauer and Erhard were perhaps the most negative. Both argued that any agreement with the East would undercut primary attention to and pressure on the East to overcome Germany's division, and were therefore not only undesirable but counterproductive (as Adenauer argued to Dulles over various Soviet-American warming steps in the late 1950s). Moreover, the German emphasis on NATO's "politics of strength" turned on continuing military confrontation and tension toward political ends, as well as the strongest possible military evidence of American political commitment. For Germany, guarding against the political risks that Germany would be unfairly constrained within NATO or that Soviet-American arms control agreements might limit political options for Germany's future as a united state were at least as important as reducing the remote military risks posed by standing East-West military capabilities.

The Social Democratic victory over Adenauer's political heirs and their advocacy of a new Ostpolitik toward Eastern Europe and eventually the Soviet Union in the late 1960s brought changes in the

definition of German political interests. Agreements, especially those that reduced the risk of East-West confrontation (conventional and nuclear) on European soil were now desirable, so long as they recognized German political independence and did not impede the process of normalization and increasing contact with Eastern Europe, including East Germany. But there was also new attention to preventing the “singularization” or unique constraint of the military or political options of an increasingly powerful Federal Republic. Successive German governments argued forcefully for their interests against proposed provisions of, for example, the Mutual Balanced Force Reduction (MBFR) talks on conventional force cuts and the European provisions of the abortive SALT II agreement of the 1970s.

For most West German and many European elites, the American technical approach to arms control was wrong because it undercut the basic credibility of the American nuclear guarantee of Europe’s security. Objectively viewed, this difficulty arose as much from endemic European ambivalence about that nuclear guarantee as from Washington’s specific arms control proposals or general prescriptions about the strategy or forces required. Negotiations or agreements designed in American eyes to lessen the threat of nuclear war or its destructiveness thus necessarily involved prior equal attention to the politics of alliance management—to calming fears of abandonment, to providing political reassurance, to ignoring or overcoming European foot dragging.

A prime example of this was the American conceptions and decisions based on the dictates of classical arms control that comprised the strategy of Flexible Response. It is a well-documented case; only the highlights are given here. Despite formal acceptance of Flexible Response as NATO strategy in 1967, most European elites remained, at best, ambivalent about its logic and prescriptions. In their eyes, deterrence was a function of uncertainty as much as of certainty, of the visible presence of many American nuclear weapons in Europe and, perhaps, even of autonomous British and French national decision making as to the particular numbers or characteristics of weapons, conventional and nuclear, to meet technically derived operational war fighting requirements. European, especially German, elites questioned even the desirability of operationalizing the concept of a permanent conventional-nuclear firebreak—that is, that NATO must make every effort to raise large conventional forces

sufficient to ensure that recourse to nuclear weapons would come as late as possible. Raising the option of a conventional or tactical nuclear conflict confined to Europe alone weakened the credibility of the American commitment to escalation even to general nuclear war on behalf of Europe's security. It also gainsaid the political reality of NATO nuclear risk sharing and the NATO decision dating from the 1950s to embody that principle in the diffusion of nuclear-capable launchers and American-controlled warheads organic to most national military forces.

Moreover, maintenance of a high threshold for nuclear use threatened the political basis on which NATO had functioned since the early 1950s. Building up Western conventional strength meant an additional challenge to the prerequisites for continued national economic recovery and growth. It would also stimulate popular fears about the risk of war and the certainty of destruction by conventional means just as surely as by nuclear use. Particularly unwanted was the emphasis American arms controllers placed on centralized command and control of all American nuclear assets, including those to be released to the NATO allies in wartime. In European thought, this highlighted their political dependence on American decisions that would probably come too quickly (given the perceptions of inherent American rashness and failure to recognize political imperatives) or too slowly (once the Rhine had been crossed, once the conventional war in Europe had been lost) or not at all (as General de Gaulle never tired of warning). The secrecy and policies of nonproliferation and nontransfer of technology which flowed from centralized control lead to suspicion and division within the alliance, not its cohesion.

Furthermore, arms race stability in Europe, if not elsewhere, lay not in reductions or avoidance of specific systems or weapons characteristics but in the continued maintenance of a full spectrum of integrated weapons systems, and, therefore, a full spectrum of risk for the Eastern adversary. Increasingly in the 1970s, the objective was seen as the need to balance (not equal the capability of) the East at and across the strategic and theater levels. As Helmut Schmidt argued in 1977 about the impact on Europe of the Soviet-American strategic nuclear compromise in SALT II, there were to be no artificial boundaries, no further firebreaks. There were to be no sanctuaries for the Soviet Union or destabilizing limits on European-based nuclear

systems—hence the need for the deployment of INF to fill in a gap in European theater capabilities.

Measures to ensure crisis stability by tight control of all forces and fail-safe procedures in command and control in Europe were more questionable. Survivability of specific weapons systems was probably less important than the political credibility of their possible use. Constraints on escalatory potential might also well be read as the lack of Western or American political will (as some German critics argued about the disengagement and confinement to barracks of all NATO forces at the time of the Warsaw Pact's invasion of Czechoslovakia in 1968). But there was still the need for limits on precipitous American decisions in a European crisis or one that exposed Europe to crisis without consultation. European criticism was therefore particularly sharp against Washington's decisions to go to DEFCON III alert status and begin tank transshipments from Europe during the Arab-Israeli war of 1973, and its proposal to launch attacks against Libya from or over European territory in 1987.

In the détente atmosphere of the 1970s, what increasingly came to matter most in European-American debates over arms negotiations was less the understanding of elites about the American approach to classical arms control and more the imperatives of European domestic politics. The basic factor was the fundamentally inward-looking, war-avoiding tenor of European political life after the horrors of World War II. Once the shock of Korea and rapid rearmament had passed, most European polities reverted to the priorities of domestic economic prosperity and social justice. Nuclear issues were virtually taboo or presented as totems of national pride. Defense policy and defense expenditures remained a given, the concern of Alliance requirements and of limited elite circles, the stuff of the down payment on the American guarantee. Only the orthodox Left remained committed to disarmament; after the end of an active campaign against nuclear disarmament (CND) in Britain in the early 1960s, even their positions reflected ideological, rather than specific, arguments.

From 1970 through 1980, the fact of arms control negotiations became an electoral asset in Europe. Ongoing negotiations were largely taken as an indicator of lessened Soviet-American tensions, of continued hope to overcome East-West political differences and eventually, perhaps, an economic "peace dividend." Politically mod-

erate voters and those on the Right, for example, saw SALT I and the ABM Treaty as being of equal value, as objectives to be pursued according to pragmatic possibilities. For them, arms control efforts were both a support for the democratic status quo in Western Europe (including a strong American presence) and a potential instrument for change in the East. The fact of MBFR was what was important, not its lack of substantial progress. MBFR alone as a forum gave new recognition and new legitimacy to the "European-ness" of Eastern Europe, and offered new chances for them to bargain with the Soviet Union and to participate equally with their separated West European brethren.

Increasingly in the 1970s, a dissatisfied Left rediscovered disarmament—articulate groups at first all but isolated in Britain and Germany, more prominent and ambitious in the Low Countries, Scandinavia, and Italy. It was not that American ideas and proposals for arms control outcomes were bad; they were merely of secondary relevance or at worst obstacles to progress. To reduce the risk of war, the true goals for the West and for the East must be the elimination of weapons and the disengagement of forces. The ABM Treaty set the standard, the technical convolutions, and the precise levels of SALT I. Reductions, limits, negotiated levels only legitimized the existing military confrontation and the continuation of the status quo, especially in Eastern Europe. Armaments could not be separated from politics, nor from economic injustice or the denial of human rights. Stabilizing the arms race missed the point, the (rapid or, if necessary, gradual) elimination of the arms race itself.

What happened in the INF deployment crises of the early 1980s was a general shift in the attitude of the European public toward (but not to) this position. The precipitating factors can be named but not fully explicated: generational change, the impact of Reagan Administration rhetoric, the antinuclear power movement, general malaise in a time of economic downturn, hopes for Eastern Europe given the rise of Solidarity. The relatively conservative governments of the time handled the shift badly at first and then, in varying degrees, successfully captured the lead. The most pronounced disaffection, despite eventual support for INF, was in what the Reagan Administration labelled the "Scandilux" states. While public opposition to INF lost out in Britain and in West Germany, the battles over arms control,

nuclear weapons, and national and alliance military strategy were among the most hotly contended of the postwar period.

The consensus in most European states by 1989 had in fact split into two factions. The prevailing Atlanticist group saw that, in the Gorbachev era, the search for both new arms control outcomes and continued military strength within the Atlantic alliance would be the *sine qua non* for security. Reductions in nuclear weapons and conventional forces were to be sought, limits that allowed for a continued American presence but which took European political requirements into account. Real Warsaw Pact reductions would be the test—as would the results—for easing Soviet control of Eastern Europe.

The second faction—largely on the Left but increasingly with Center and Right adherents—saw arms control efforts as part of the problem, not the solution. Formal negotiations on INF were slow and ponderous, and in the end, dependent on unilateral action or the force of personality (as with the successes they saw wrought by Gorbachev's concessions on INF or his push on the CFE mandate). Reagan's insistence on a strategic defense initiative (SDI), even in the heady atmosphere of the total arms reduction bargaining at Reykjavik in 1986, meant there would never be radical reductions if arms control was left to the superpowers alone. The American Right's assault on the ABM Treaty also showed that even the most binding superpower agreements could be threatened at any time. Arms control was a captive of the American political process, unresponsive to European needs. It would always be basically a ratification of the status quo through direct compensation for any force cuts that might be achieved (for example, the push for nuclear "modernization" and new nuclear capabilities after the INF eliminations). What was needed were political solutions to create a new European security regime.

The revolutions in Eastern Europe in 1989 completed the destruction of the old pro-Atlantic, nuclear-tolerant political consensus in all but Britain. In Germany, the prospects for reunification represented only the last blurring of East-West division. Elsewhere, the reemergence of the German question, the race toward democracy in Eastern Europe, and the belief that greater Soviet force withdrawals would soon be forthcoming changed public attitudes and priorities. In public rhetoric, CFE II was already a reality; and CSCE II was the

hope for a Pan-European security solution. More cautious elites shifted once the electoral consequences of too much caution and unchanging Atlanticism became apparent, and the new budgetary pressures for burden shedding and greater support of Eastern Europe became ever stronger.

THE FUTURE OF ARMS CONTROL IN EUROPE: 1990–2010

What is now apparent is that if arms control is to be of major value for the construction of a new European security system, it must reflect a fundamentally different set of assumptions about the sources of political stability and peaceful international change. Classical arms control's focus on weapons and military relationships, its underlying assumption of political stasis are, at best, irrelevant to the Europe that is emerging and at worst, damaging. The old "preventative" arms control agenda has been overtaken. The goal for many is to create new cooperative security structures and processes, neither embedded in an exclusively military definition of stability nor tied to a set of fixed military formulas that will inevitably block bolder aspirations and absorb the creative political energies now unleashed.

Major military capabilities will remain in Europe for the foreseeable future; potential sources of conflict and grave uncertainty will continue. The United States and especially the Soviet Union still retain overwhelming nuclear arsenals and sophisticated conventional forces both within Europe and close outside. Also, the fragmentation in the East has unfrozen many older tensions—ethnic, regional, economic, political, and, only secondarily, military—that had been submerged in the larger East-West conflict. Not all of these are relevant in the Europe of 1990; many will serve only as familiar rhetorical rallying points and ultimately be fissures but not real cleavages to be accounted for in defining enduring national interests. Moreover, disputes between Hungary and Romania, between Bulgaria and Turkey fade in long-term significance before questions about the future role of a German economic superpower or about what role a deeply divided Soviet Union will play in European relationships.

The limitation of military forces, the methods of risk reduction and assured control of military forces will ease this process but will by themselves provide few critical or lasting answers for Europe's future

security. Far more important in the long and short run will be the political creation of mechanisms and channels for enriching and expanding state-to-state political confidence, for fostering the surrender (or sharing) of traditional sovereign rights to new cooperative structures, for achieving the assured peaceful resolution of disputes and the harmonization of political and economic systems. The roles to be played by both superpowers are still to be negotiated, but their future involvement will almost certainly turn less on their military preeminence and more on their continuing political engagement in Europe as "ordinary" players.

There is, of course, no guarantee of success in cooperation or against reversion to the patterns of the past. All of these goals require time and at least a significant degree of order and predictability for implementation. Events are continuing to outpace thought, let alone decision. Political leaders are either untried, overburdened, or both. There are few all-European organizations that now exist. Relying on the NATO-WTO structure is, at best, transitional and the neutral and the nonaligned states still have to be accommodated in continuing discussions. Expansion eastward of West European institutions (the EC) or the looser group of twenty-four, or the opening up of NATO itself, may appear theoretically appealing but will involve fundamental change, and will raise more intellectual and political choices and constraints than they would resolve at present. Much still will turn on resolution of the central issue confronting Europe, the future role of Germany after unification—a question not answered simply by Germany's continued NATO membership.

What specific roles will arms control efforts assume in this process, especially in the critical transition phase of the next several years? In one sense, these will be limited given the uncertainty that exists over the political agenda of a united Germany or the continuing debate over the fate of the Soviet Union. But there are obvious opportunities for positive action in the two arms control negotiations that do exist, CFE and CSCE respectively. In a very real sense, both already serve as umbrella frameworks; there is little that cannot be considered or added on as an expert activity if there is need and agreement. All of the principal actors have an assured role in one or both, legitimized and exercised over time, and with considerable elite and popular support. Negotiations are slow but ongoing, and both frameworks have proven themselves relatively adaptable to change. At a mini-

mum, CFE will serve as a locus in which to agree on what else is to happen; at a maximum, CSCE, with new institutions and perhaps a de facto executive committee derived from the emerging 1 plus 4 consensus (Germany and the wartime allies) could be the antecedent of a new European security architecture.

CFE in its present bloc-to-bloc negotiating mode reflects many of the outdated assumptions of classical arms control. There have been long delays in the past, and there is the new political reality created by Soviet-negotiated withdrawals from Hungary, Czechoslovakia, and East Germany. Nonetheless, with new momentum and greater political confidence, it could also provide important elements for longer-term, more wide-ranging political agreements. A reinvigorated CFE process could, for example, include both greater transparency in national decision making and far-reaching military manpower cuts (as those for all-German forces in this round) with a minimum of turbulence and political opposition. Force cuts will be easier to regulate and justify for a somewhat ambivalent Soviet public as well as for West and East Europeans anxious to garner a direct détente dividend for domestic consumption. CFE I together with an immediately launched CFE II will also dampen Polish-German tensions that may result from greater Soviet cuts. Germany will not see itself as singularized, and Poland will not fear abandonment to German aspirations. CFE could help arrange compensatory measures: smoothing the political wrinkles in new asymmetric cuts in the Soviet Western Military Districts or in all-German forces as well as softening the inevitable inequalities in readiness and survivability as dictated by geography.

CFE II will be essentially a subset of CSCE and thus provide the bridge to more limited discussions on military issues now left visible as the logic of existing military deployments weakens and popular support erodes. Among the first topics on the list are the revision of existing military doctrines governing nuclear use (now superficially treated in CSCE) and the continued basing of a limited number of ground- and air-launched tactical nuclear weapons in the Central European zone, especially in a united Germany that is a NATO member. The short-run answer will probably not be a third nuclear zero for short-run nuclear forces (SNF) but some asymmetric limitations on US, Soviet, and possibly British and French tactical nuclear

warheads (or if necessary, launchers) in the Atlantic-to-the-Urals (ATTU) region.

Moreover, CFE has already developed the useful function of "sufficiency rules" with which to regulate the political proportions and benefits of numerical limitation. In CFE I, these will limit the equipment share of any one nation to no more than approximately 33 percent of the total regional capability, a measure primarily aimed at the Soviet Union but now with implications for the United States and a united Germany as well. Future years of peace in Europe may rob these rules of their intended impact as states rush to shed, rather than take on military burdens. Yet with some extension and expansion, they will allow a continuing nondiscriminatory vehicle for the discussion of the size and shape of an all-German military power and the nature of superpower involvement and the guarantee roles they can play during the transition at specific levels of deployment and preparedness.

Reductions achieved in a CFE forum will have specific political benefits beyond the hoped-for reductions in national military expenditures and the achievement of greater transparency about the military capabilities and strategies of all European states. First, they will be legally binding and legitimate, not imposed, and therefore a charge on all governments and their successors, whoever they might be. It will be far more difficult to accuse present governments or oppositions of having "lost the army," or of having sold out in bilateral deals—themes now heard in Soviet politics and characteristics of Central European politics in the 1930s. Such challenges from nationalists and conservatives are almost certain to grow in some parts of Eastern Europe after predictable disappointments with democracy and market economies. Second, CFE's link to CSCE provides a role for all interested parties under the present circumstances; their influence is not guaranteed but their presence is. In the long run, this may be equally important for the United States and Canada as NATO comes under increasing European challenge as it is for an Austria attempting to define what neutrality means in a new Pan-European security environment.

A third political function, but clearly of mixed benefit, is the use of CFE as a brake on unilateral actions or precipitous change that will be even more destabilizing than the present turmoil. MBFR played this role almost too well in the 1970s against the ravages of the

Mansfield amendment for American withdrawals or the plans of European budget cutters. CFE I also did not prevent a popular surge toward *de facto* German reunification or a Hungarian unilateral withdrawal from the Warsaw Pact. All that may be gained through CFE is time for negotiation and greater confidence building, for adjustments within existing alliances or for credible reassurance for impatient legislatures that there is a settlement coming in the near future.

What would have been the greatest contribution to the transition phase—an agreement on the details of interstate cooperation and increasing interaction within a wide-ranging multilateral verification system—will now not be part of CFE I. The issue is not agreement on particular substantive domains: satellite observation, aerial surveillance, and different types of on-site inspection (OSI) on active forces, even with a 20 percent margin of error, are probably sufficient to deal with any real risks of sudden military breakout or short-warning attack. Rather, what is needed is both the accumulation of cooperative results for increasing intra-Europe reassurance at all levels and a forum for progressive evolution and experimentation in “new thinking.” Greater openness within Europe means less need for intricate technologies and procedures but more for experience in direct information sharing, in challenge and dispute settlement, and the incorporation of administrative and legal precedents into “European” law. These results supersede the standard, militarily focused confidence- and security-building measures (CSBMs) now handled in CSCE. They could also be treated there, in CSCE, or as the first topic within a CFE II. But there is also the possibility that the passage of time will not make the construction of a comprehensive verification system for all European states any easier and may well make the standards for nation-by-nation reassurance higher and more significant, not lower.

The present CSCE of thirty-four nations (thirty-five with Albania) can make similar contributions to the transition to a new European security system. The negotiations of more constraining CSBMs is an obvious priority; the purpose is less the specific substantive restrictions than the testing of the limits of what is now to be considered “normal” uses of peacetime military establishments. Also of importance will be the expansion of individual and group professional exchanges, as those begun under the all-European Military Doctrine

Seminar with exchanges at the highest levels of military leadership. Confidence building is a process which benefits from exercise even in revolutionary times.

CSCE is also the only existing framework in which all the circles that will comprise the new domain of European security come together in the short term. It is not the Congress of Vienna of 1815 or even the Paris Conference of 1918, but it has, in recent months, gained considerable support from European states, especially Germany, and growing (if still reluctant) attention from the United States and Britain. It is the body that legitimated the outcomes of both the 2 plus 4 talks on German unity and the CFE I equipment-reduction bargains. For many Europeans, it contains the basic preconditions for moving toward an all-European collective security system. It includes political and economic talks to parallel those on security; it provides for the intersection of bilateral, regional, and multilateral talks and actions.

Under the agreements apparent in the fall of 1990, CSCE will gain new permanent institutions for verification and information exchange as well as a small secretariat. What it will also need is a serious political agenda that prevents its diversion into a "talk shop," and a set of political mechanisms that allows differential treatment and influence for the Soviet Union and Malta.

What will obviously affect the importance of CSCE as an all-European prototype will be the changing European and American priorities within NATO and the continued bankruptcy of the Warsaw Pact. A Congressional rush to "bring the boys back home," continuing Soviet acquiescence in Europe despite domestic unrest, an ambitious German-French campaign to develop a security agenda for the European Community, several years of peaceful transition in Europe—all might undermine the priority presently attached to NATO as the only viable, active security instrument and the preferred American link to Europe. CSCE would still be only one institution among many with overlapping responsibilities but, with a rationalized membership and a differentiated institutional structure, it would be a logical locus for the design of the European future.

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What of the farther-term future? Predicting the contribution of arms control beyond the transition period turns on a judgment on the

future of the present peaceful European revolution. The most optimistic projection is that all of Europe is now a zone of peace; that the Soviet Union has now defined its western border as the limit of its security zone; and that the Soviet Union and the United States remain guarantee powers for a peaceful and largely democratic Europe. Future interactions among all European states will be an extension of the cooperative patterns which now characterize relations among the member states of the European Community and the European Free Trade Area (EFTA), and are thought "normal" among the NATO states with the occasional exception of Greece and Turkey.

Perhaps the goal for the relationships among former East-West adversaries is that achieved by postwar France and Germany despite their present mutual irritation—the eradication of past enmity, the achievement of present balance, and the commitment to continuing cooperation in building a secure and prosperous Europe. This process must now be replicated with Germany's neighbors and former foes in the East—Poland and the Soviet Union in the first rank—with pledges and commitments, individual exchanges, and cultural understandings going far beyond the present bilateral state-to-state treaties. Both present political calculation and economic necessity in the East may make it possible to achieve these changed ties in less than the forty years of concerted effort that has undergirded the Franco-German relationship.

In this future Europe, the goal will be to develop what Karl Deutsch has called "pluralistic security communities": the degree of identification and common concern that characterizes the present relationships within the European Community or NATO, yet the acceptance of differences in national capabilities, interests, and identities. Military balances will be second or third order considerations and the danger of attack or invasion from within Europe, minimal. Common security is to be sought at very low levels of military capability with lessened emphasis on purely national assets; the real dangers for which military force will be needed in Europe are anarchy and ethnic conflict that threaten public order and agreed borders. Arms control may provide ways to think about standards for technical implementation or the form for the exchange of mutual security guarantees. But the principal guarantees of order will be political and economic cooperation and exchange—a radical departure from the state-oriented, *realpolitik*-driven international relations

of the past four decades. Between countries, this will occur perhaps along the lines set forth by Jean Monnet, David Mitrany, and the other integration theorists who provided the intellectual capital for what is now the European Community. It also will turn on a favorable international environment—one without major security threats in areas close to Europe and the continuing positive contributions of the Soviet Union and the United States (whether direct or indirect participants), and the positive interest of Japan. Within countries, this will depend on the health and the maturing of democratic politics and political elites secure against the temptations of revived economic and political nationalism or the instruments of demagogic fascism.

The development of cooperative or even common European organizations will depend quite explicitly on the primary political agreements of the European states. Representation of political and economic differences among states will be a complex task. Some states will unquestionably be more equal than others—Germany in whatever form will be the first pole of attraction or the primary weight to be balanced. All European states will be involved in the ratification, if not the creation, of the European system, its institutions and its procedures. The balances to be struck are multilateral and perhaps multipolar and multilayered as well—a complex task for all states but especially those in Eastern Europe where democracy is still reawakening and where leaderships are consumed with recreating the arrangements needed for ordinary life in open societies. But it is hard to imagine a basis for legitimacy, most especially in the initial stages, other than the participation—more or less equal, more or less informed—of all European states.

This Europe is fundamentally different from that of the postwar era, from any Europe experienced in the modern era except, perhaps, from 1870 to 1906 and maybe not even then. Past evidence suggests it will not happen: that radical political change will not lead to political transformation; that military risks and nuclear weapons, political conflict and the use of major force will remain continuing elements in the political landscape of any new Europe. It also suggests the probability of continuing division and discord among smaller European groupings, the robust political utility of the concept of enemies (*Feindbilder*), and the persistence of competition and rivalry. But the past is not necessarily the only authority. It would not have

allowed the prediction of the remarkable events of 1989, the nonviolent character of almost all political change in Eastern Europe, or even the peaceful, sudden way in which German unification has reemerged in German consciousness, let alone in the international system.

Questions that will endure in any new Europe are: What is the role of military capability and what are the new requirements for a redefined European security? What will justify or determine national military establishments beyond symbolic politics and the needs of civil order or emergency relief? What will be the precise arrangements for the remaining nuclear questions? The foreseeable trend is toward minimum deterrence (perhaps with some degree of cooperative nuclear management among the major states) and the creation of small, secure forces for the nuclear haves. Complementary needs are for radically reorganized conventional forces with much more defensive equipment and deployments, and a strengthened, expanded nonproliferation regime in Europe to reaffirm Germany's nonnuclear status and to curb the temptations for others. But what will be the methods to restrict limited American and Soviet capabilities in and around Europe to offset nuclear forces based on Soviet territory and on American naval carriers? What will be the entity and the procedures that will ensure limitation and integration—however loose—of the almost surely remaining French and British nuclear forces? What will (or should) the joint forces consist of in order to allow for peace keeping in or around Europe, or even for intervention in case of conflict containment elsewhere?

An alternative future is one that returns to peaceful fragmentation or a European balance of power system, with a rough but intricate balancing of all political-military ties—as in the early twentieth century. Nuclear spread would then appear more likely but perhaps not inevitable. States will almost certainly depend less on standing forces, but how will the balances of active and mobilizable forces be struck and maintained? Will they be constrained technologically or politically? And will there be no events outside of Europe for which national states (or even a European security community itself) will wish to have military alternatives available?

Under any scenario, it is in the area of military relationships and in the setting and verifying of military limits within an assured, legitimate political status quo that a recasting of classic arms control

concepts seems the most germane. It is certainly time to take up the task, most especially the formulation or reconsideration of minimum deterrence ideas. But it is far more important to think through an expanded concept of arms control—one far more concerned with the politics of security and of reinforcing new cooperative peaceful relations among European states or, at a minimum, with the United States and the Soviet Union. Arms control will be one but not the only instrument through which to attempt this. But its potential contribution will outweigh all of the ascribed achievements of the past, the risk of failure well worth the possible gain in the creation of a new order of international cooperation in Europe.

We are, however, totally unprepared for peace. We have never had peace, and it may be forced upon us before we really want it. One can only, in the spirit of Newton's *Opticks*, raise some queries. What, for instance, can hold society together in the absence of an external threat? What are the institutions which can embody "conflict control"—that general social system of which arms control is only a special case? How do we catch the disintegrating dynamic processes in society—the epidemics of hatred, the infectious images of falsehood, the powerful symbols which lead to destruction—and stop them, by education, by quarantine, by counter-eloquence, before they spread too far? How do we give the individual an image of self-respect, of identification with some larger group, without permitting the development of images of hatred and intolerance? How do we preserve the richness and variety of cultural differences in a world of rapid communication and peace—how, in other words, do we preserve the very real virtues of nationalism in a warless world? How do we prevent the great latent social processes (population growth, emotional hysteria, charismatic leadership, mistaken images of social fact) from carrying societies to poverty, factionalism, and decay? More difficult perhaps, how do we prevent boredom, how do we preserve danger, excitement, and a sense of high purpose? How do we deal with sadism and masculinism, masochism and feminism, the strut and the swagger, the cringe and the death wish? How do we release people from the crippling "binds" of ambivalence, and release their creative potential? How do we raise children in a warless world? What kind of ethic do we inculcate, and what are our defenses against its corruption?

Kenneth E. Boulding

From "The Domestic Implications of Arms Control"

Dædalus, Fall 1960: pages 858–59.

Arms Control: A View from Moscow

IN THE FIELD OF ARMS CONTROL we are rapidly entering a new phase, which will create new challenges. At this time we must not only discover and define the arms control problems that will face the United States and the Soviet Union in the years to come, but also look back at the experiences of the past few decades in order to learn lessons for the future. This task has special importance for my country in this turbulent period.

In retrospect the Soviet concept of arms control does not appear to have developed smoothly. Within official Soviet circles the term *arms control* itself was originally far from popular; since the 1920s the Soviet leadership has espoused a policy of general and complete disarmament as the only true way to a secure world. Whether its proponents believed in it or not, this maximalist approach was ideologically irreproachable and fit with the propaganda program. At the same time Soviet officials and the mass media often attacked the whole concept of arms control as a “bourgeois trick” aimed at eroding Soviet sovereignty, gaining unilateral advantages, and continuing the arms race. However, while pursuing the official policy of general and complete disarmament, Soviet diplomats and the military were sometimes quite willing to pursue more realistic, incremental goals (as proved by archival documents which have been recently declassified and made available). In many ways a pragmatic approach was typical both of Maxim Litvinov-style diplomacy during the Geneva Conference on Disarmament in 1932 and of the Soviet senior diplomats who were elaborating documents for the Zorin-McCloy talks on disarmament in the early 1960s.

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Soviet involvement in the arms control process in the 1960s was prompted by experience. A number of acute crises in the early 1960s, particularly the Cuban Missile Crisis, pushed the Soviet side toward concrete actions to reduce the nuclear danger, and thus toward de facto acceptance of arms control (though it made no public repudiation of general and complete disarmament as its ideological foundation and highest goal).

Yet the Soviets' critical attitude toward the arms control concept remains to this day. The critics say that arms control neither stops nor substantially curbs the Soviet-American arms race, and that the United States has, at each stage of the process, tried to preserve the right to continue modernizing its weaponry. The Soviet Union, one might add, often did the same—mostly because it always felt somewhat behind the United States in the arms race. As a result, neither side was able to introduce an arms control process that would keep the process of negotiation ahead of the process of building and deploying new weapons systems. Despite these deficiencies, the arms control process has always had great political and psychological significance. The process of mutual learning and accommodation softened each country's paranoid perceptions of the other.

The arms control agreements, moreover, definitely introduced greater predictability into the military postures of both sides, an outcome appreciated not only by political leaders but by military commanders as well. Joseph S. Nye has noted, "as arms control agreements become accepted, political leaders and bureaucratic planners on both sides are less likely to base their strategy upon far-fetched worst case scenarios."¹ SALT I, SALT II, and START were the central area of interaction between the two superpowers from the 1960s until a few years ago. Only recently did the Soviet Union and the United States begin to cooperate in several other areas. Thus, arms control was not only a serious diplomatic project of the two giant states which possess the most devastating weapons in the history of human civilization, it was also a dialogue between two politically and militarily strategic cultures that differed drastically in many dimensions. Analysis of negotiation records shows how difficult it was in many cases to find common language, common reference points for negotiations. At the same time, these joint efforts showed that difficult issues can be resolved quickly and soundly when the political will exists. (One good illustration is the Moscow Partial

Test Ban Treaty of 1963.) The talks on limitations and reductions of strategic arms stimulated wider and more numerous nonofficial discussions on political and military issues. Forums for Soviet-American interaction, set up during the 1960s and later, became part of the process of mutual learning and adaptation. At these forums partially concurrent and often common ideas about arms reduction and strategic stability were aired. In many instances they brought together a rare mix of participants, including scholars, politicians, senior military officers, and diplomats.

Yet many conclusions established in these talks were not later applied in official Soviet-American contacts. This is one of the reasons why both sides have not yet agreed on comprehensive standards for strategic stability, standards which would greatly increase the efficiency of arms control talks. Also, many important arms control and arms limitation issues, though widely discussed in both countries, are poorly studied by the two governments in their official channels. These issues include, most conspicuously, nuclear proliferation and the transfer of military technology from developed to developing countries.

These failures guaranteed that the problems to be resolved would often mesh poorly with the structures established to resolve them. Very complex interactions were required, for instance, between political scientists and foreign policy experts, on the one hand, and experts in nuclear technology on the other. Until quite recently, efforts to stem proliferation or to limit transfers often contradicted the bilateral relations between one of the superpowers and a Third World country. Moreover, the relations of the nuclear powers, though improved, have not extended to regional conflicts.

While there are officially only five nuclear powers today, the spread of nuclear weapons and technology are likely to make the true picture very different, very soon. What makes the situation even more dangerous than it was some decades ago is the proliferation of ballistic missile technologies. In the years ahead the issue of arms sales could become, in some respects, even more acute as Northern Hemisphere powers seek increasingly to offset diminishing sales of arms in the North by increasing arms sales to the Southern Hemisphere. Also, because many southern countries have developed their own military industries, it is increasingly difficult to curb militariza-

tion in that part of the globe solely by limiting arms transfers from the USSR, the United States, and other "advanced" countries.

Many analysts note correctly the widespread perception in the Third World that certain existing multilateral arms control measures are inherently discriminatory since they allow weapons to the northern powers and deny them to the southern powers.² This is becoming an increasingly serious factor in arms control, especially in the areas of nuclear and chemical weapons.

In any retrospective analysis the Soviet-American Antiballistic Missile (ABM) Treaty of 1972 needs to be mentioned as perhaps the greatest achievement in the field of arms limitations so far; it determined the "strategic landscape" for many years. As is well known, the road to that treaty was long and difficult. Heated political debates on the treaty and on ballistic missile defense (BMD) have generally occurred not only in the United States but in the Soviet Union as well. In these debates a substantial role was played by scientists, including many who had participated in Pugwash meetings.

A number of distinguished Soviet scientists proved that a comprehensive ballistic missile defense of the nation's territory could not be achieved. Allied with reasonable and knowledgeable military experts, they won out; technological rather than strategic reasons caused the USSR of the early 1970s to reject the idea of a nationwide BMD.

The impact of the ABM Treaty became even greater in the 1980s—particularly because of President Reagan's Strategic Defense Initiative (SDI) program. During debates on BMD in the 1980s, technological arguments played a significant and sometimes even decisive role in both the Soviet Union and the United States. Economic and strategic arguments also became more important, a consequence of previous discussions between Soviet experts and their American colleagues.

In the early stages of the arms control process, government departments in the USSR did not always welcome serious or deep involvement by the academic community in arms control, though they repeatedly made formal declarations that the issue should be viewed "from a scientific perspective." There were many implicit attempts to put certain limits on the activities of the academic community.

When the Soviet Union and the United States started their negotiations on general and complete disarmament in the early 1960s, parallel Soviet-American meetings of scholars on the same issue also took place. Every Soviet delegation of scientists was required to ask for "directives" from the Ministry of Foreign Affairs before putting forward their own proposals. The representatives of the Ministry were quite cool to the idea of letting scholars develop their own ideas, "an attempt to substitute the Soviet program of general and complete disarmament by some other alleged scientific plan."³ Many in the military questioned the wisdom of allowing active participation of civilian analysts from the academic community.

The importance of the academic community increased rapidly in the 1980s, especially after the mid-1980s, when the new political leadership came to power. Gorbachev, Shevardnadze, Yakovlev, Dobrynyn, and other top officials repeatedly stressed the need for Soviet scientists to participate in resolving the disarmament issue. One example of the scientists' new role is the activity of the Committee of Soviet Scientists for Peace, Against Nuclear Threat, set up by academician Evgeniy P. Velikhov in 1983. Since its founding, the Committee has investigated several aspects of arms control and disarmament: climatic and environmental consequences of nuclear war; preventing the arms race in outer space; strategic stability during a period of radical cuts of strategic nuclear weapons; and the prospects of nationwide BMD in the face of likely countermeasures. These studies have helped to develop the Soviet program of an asymmetrical response to SDI; also, the USSR position on the START negotiations.

For the first time in Soviet history a number of scientists (from nonmilitary industrial departments) became members of, or expert consultants to Soviet negotiating teams in both Geneva and Vienna. A new arms control community was formed in the Soviet Union in the 1980s, of natural and political scientists, retired senior military officers and former diplomats. One of the shortcomings of this new community is that, unlike the US arms control community, none of its members is a qualified expert in international law; however, both the Soviet and US communities lack competence in sociology and economics.

The members of this Soviet arms control community are becoming increasingly involved in the decision-making process in the new

Supreme Soviet, the parliament of the USSR. The attitudes of governmental departments and ministries are slowly changing to favor such participation by scientists and other nongovernmental experts in the arms control process. The relations between certain well-established institutions and a new arms control community, however, are sometimes far from serious.

Soviet scientists and the arms control community remain active also in the nuclear test ban field. The absence of a comprehensive test ban treaty was one of the missed opportunities of the past. In the 1960s blame could be shared almost equally by the United States and the Soviet Union; in the 1980s it was clearly the result of constant resistance by successive American administrations.

Gorbachev made a decisive effort to solve the issue when he initiated a unilateral moratorium on Soviet testing which lasted for more than five hundred days. Unfortunately, during this period the United States continued its tests with the same intensity, and the Soviet government felt obliged to resume nuclear testing, announcing that it was ready to stop all tests whenever the US administration decided to do the same.

Cooperation of Soviet and American scientists has provided reliable methods of seismic monitoring and control, which permits each side to detect the power of a monitored explosion and, significantly, the existence of an explosion of almost any meaningful yield. Techniques for verifying a comprehensive test ban treaty are now available.

In 1989–1990 a powerful grassroots movement against nuclear tests developed in the USSR, especially in Kazakhstan. While people in the Soviet Union, to be sure, are preoccupied with domestic political, economic, and ecological issues, and channel their public energy in these directions, this domestic activity influences the arms control issue. For example, environmentalist groups in the Chapayevsk area, concerned with the danger of pollution, blocked a local plant built for destroying chemical weapons. Because of glasnost the pressure of conservation groups on government is becoming explicit; while it was strong in the previous period, it was not part of the decision-making process.

We are witnessing fundamental and rapid changes in major areas of international relations. Developments such as perestroika, economic reforms and new interrepublic relations in the USSR, the emergence of

new regimes and structures in Eastern Europe, and the unification of the two German states spell tectonic shifts in the contemporary international system. Their impact on the arms control process, however, is not yet clear, though some new developments need to be noted. Cuts in armed forces and in military procurement seem to be occurring whether or not they are approved of by the arms control establishment. These are spurred solely by the new political climate, with declining support from the public and individual parliaments for large military budgets. In many European countries the size and structure of the armed forces will be determined not by military considerations alone but by public concern for the environment and other social issues. The arms control process must learn to accommodate itself to asynchronous, unilateral state actions—a new and immediate challenge for the international arms control community.

One of the most crucial issues, certainly, is the future of the USSR. Will it be a federation or a confederation? Will the Soviet Union fall apart, giving way to a set of alliances between the Russian Federation and Belorussia, the Ukraine and Belorussia, Russia and Kazakhstan, and so on? We cannot exclude the possibility that a transformed Soviet Union will mean new actors in the European arms control process, possibly intensifying the role of the constituent republics.⁴

One thing is certain: only a peaceful transformation of the USSR into a system of republics in stable relations with each other will guarantee the continuation of the arms control process. If there is substantial violence in the USSR, the situation will be quite different. Though it would probably not mean a complete return to the past, with a practically unlimited arms race, violence might mean that many vital arms control decisions would be postponed, distorted.

Given the unresolved issues of the past and the emerging issues for the future, the arms control agenda for the 1990s looks, as seen from Moscow, something like this:

1. We must achieve a new agreement, after START I, on substantial reductions in the strategic forces of the Soviet Union and United States. According to the preliminary assessment of the Task Force of the Committee of Soviet Scientists, each side, as a result of START II, should eliminate from 3,000 to 4,000 warheads on strategic delivery vehicles. In addition, in contrast to SALT I, SALT II, and START I, the new treaty should give serious attention

to enhancing strategic stability. The concept of “de-MIRVing” (removing multiple-warhead weapons) stands out as a possibility. From the standpoint of Soviet national security we cannot proceed with this new treaty without the participation of France, the United Kingdom, and the People’s Republic of China. One sound suggestion for accomplishing this would be for these nuclear powers to agree to limit modernization of their strategic forces in a manner similar to the Soviet-American agreement and to accept a reduction of their strategic forces in proportion to the US and Soviet cuts.

For this it is necessary to define what a real, legitimate “modernization” is, and what goes beyond that. I suggest that modernization should mean comparatively slow, incremental improvement of specific characteristics of already existing weapons systems without radical changes in their architecture. One cannot apply the term “modernization” to development of new rockets, tanks, or submarines—or, of course, to the development of weapons based on new physical principles. Thus, the development of the Soviet medium-range ballistic missile SS-20 and of the American Pershing-II and GLCM should not be treated as modernizations of the SS-4, SS-5, and Pershing-I. The same applies to the transition from the Minuteman-III ICBM to the MX, from the SS-19 to the SS-24, and so on.

These cuts in the strategic nuclear forces of the Soviet Union and the United States should be accompanied by changes in doctrines and operational-strategic concepts—by a move from “offensive deterrence” to “defensive deterrence.” As cuts in strategic (and nonstrategic) forces go deeper, it will become increasingly important that not only the delivery systems but the nuclear warheads themselves be destroyed. This will require a set of special procedures and highly developed plans for verification.

2. The regime of the ABM Treaty of 1972 should be strengthened by ridding the treaty text of some of the uncertainties and ambiguities which it contains. Additional limitations should be placed on activities which advance the development of potential means (components) for ballistic missile defense; this is especially true for space-based components which make use of new physical principles. The Soviet-American Standing Consultative Commission in Geneva, created by the SALT I agreement, would be the logical institution to do this.

3. The Comprehensive Test Ban Treaty should be signed, first by the United States and the USSR and then by other nuclear powers. This treaty, along with the Intermediate-Range Nuclear Forces (INF) Treaty, START I, and START II, could contribute to the nonproliferation of nuclear weapons, demonstrating that the United States, the Soviet Union, and other nuclear powers will honor their commitments in accordance with Article 6 of the Nonproliferation Treaty. The Comprehensive Test Ban would not stop the nuclear arms race itself; it would not block the production of nuclear warheads according to existing technologies. Those who wish to preserve nuclear deterrence need not worry for the foreseeable future. Such a treaty, however, would complicate greatly the development of "third generation" nuclear weapons.

4. The success of the multilateral Chemical Weapons Convention will be absolutely necessary for the stability of the international system, especially in the Third World. Nothing less than a comprehensive worldwide ban on the production, stockpiling, and use of these weapons of mass destruction can offer the international community adequate protection. The problem of verification is substantial. A solution will require methods more pervasive and intrusive than those that exist in the nuclear area.

5. International agreements—mostly Soviet-American but partly international—to limit and cut naval forces and armaments and to restrict naval activities are major requirements for the success of arms control in the 1990s. One realistic possibility is the abolition of tactical nuclear weapons, with the exception of SLBMs, from the American, Soviet, British, and French navies. This would require the parties to understand the vital national interests of each, the existing geopolitical asymmetries, and the differences in the functions of navies. They also must realistically assess the role of navies in the contemporary world. Soviet-American agreement on naval arms control could be achieved on either a global or a regional basis. The latter looks more and more plausible. For example, one could discuss the possibility of decreasing the threat posed by the Soviet Navy to NATO communications in the North Atlantic in return for the United States decreasing its naval threat to Soviet territory. Multilateral naval forces and arms limitations agreements, as confidence-building measures, could be achieved in the 1990s in areas like the

Baltic Sea, the Black Sea, the Barents Sea, the Sea of Okhotsk, the Sea of Japan, the Gulf of Mexico, and so on.

6. Soviet-American and multinational agreements which limit arms sales to the Third World, especially to major conflict areas, are badly needed. Such agreements could first cover the most destructive weapons, such as MLRS and modern fighter-bombers or attack aircraft. Some formula for moving toward nonproliferation of weapons-production technologies should be found, and then applied to the corresponding multilateral regime.

7. Antisatellite systems must be prohibited. This agreement (first Soviet-American, then multilateral) should cover designated ASATs of any kind (including those based on new physical principles), which might be used against objects at any orbit—low, middle, or high.

8. Conventional forces in Europe must be cut much further and restructured according to criteria of nonoffensive defense.⁵ The size of the armed forces and the number of major weapons (tanks, artillery tubes, aircraft, and so on) for each country could be defined according to the size of its territory or the length of its boundaries.

9. Tactical (operational-tactical) nuclear weapons in Europe must be radically cut or perhaps totally eliminated, beginning with the central region. This could be implemented in several stages, including the stage of “minimal deterrence” in Europe.⁶

10. We must put into effect substantial confidence-building measures in the Far East and North Pacific which would cover the activities of the ground, air, and naval forces of the Soviet Union, the United States, Japan, Canada, China, South Korea, and North Korea. Permanent international institutions must be created for the implementation of these measures.

One of the key questions for the 1990s is whether we can apply positive arms control experiences beyond the nations of the Northern Hemisphere, and whether the same methods can be used in major conflict areas in the Third World. It looks as if some of the new methods, if they prove successful in Europe, could be applied in some other areas as well. For example, in addition to cuts, some structural changes in armed forces (according to the principles of nonoffensive defense) could be put into effect in selected regions. This might help

stabilize relations between India and Pakistan, India and China, and China and Vietnam. Positive results in naval arms control between the United States and the USSR could be used as examples to follow in finding solutions for other regions confronting the danger of a naval arms race.

These arms control tasks, and others, cannot be achieved without expanding and deepening the interaction between independent experts from all of the involved parties. There is always the possibility that certain international organizations will play a growing role in the arms control process, though nation-states will almost certainly continue to take the lead in the 1990s and beyond.

AUTHOR'S NOTE:

This article reflects only the views of the author.

ENDNOTES

¹Joseph S. Nye, Jr., "Arms Control after the Cold War," *Foreign Affairs* 68 (Winter 1989-1990): 45.

²See, for example, Michael T. Klare, "An Arms Control Agenda for the Third World," *Arms Control Today* 20 (3) (April 1990): 9.

³Foreign Policy Archive of the Ministry of Foreign Affairs of the USSR, fund 47, list 7, file 20, doc. 85, p. 125.

⁴There was, for example, a statement by Boris Yeltsin, the Chairman of the Supreme Soviet of the Russian Federation, that it intends to exercise its sovereign rights in the area of arms sales (especially rockets from the territory of the Russian Federation). See *Moskovskiy Komsomolets*, 14 July 1990.

⁵It will take a lot of time and effort to achieve true nonoffensive defense; the process will require several stages. See A. Kokoshin, A. Konovalov, V. Larionov, V. Mazing, *Problems of Ensuring Stability with Radical Cuts in Armed Forces and Conventional Armaments in Europe* (Moscow: NPA Publishing House, 1989), 8-14.

⁶Some very useful suggestions in this regard have been made by a group from the Institute of Europe, USSR Academy of Science. See P. Bayev, V. Zhurkin, S. Karaganov, and V. Shein, *Tactical Nuclear Weapons in Europe: The Problem of Reduction and Elimination* (Moscow: NPA Publishing House, 1990), 44-46.

We live in a revolutionary age and must accommodate ourselves to the continuance of a high degree of distrust and animosity between men and states. My own belief in the importance of limited agreements derives from a sense that we are on the edge of a fundamental change in the world balance of power as it has existed in the last fifteen years, and that the axis of world tension is about to shift from "East-West" to "South-East-North-West," or even to "North-South." If so, there is no time to be lost, given the inevitable time lag in the adjustment of governments and policies to reality, in seeking to identify the areas of common interest with the Soviet Union. It would be one of the major tragedies of world history if two powers the size of Russia and the United States were to remain locked in a position of implacable hostility because of their inability to overcome the barriers raised by competing military technologies after the political basis of that hostility had been transmuted into something approaching a common cause against new dangers.

Alastair Buchan

From "Comments on the Issue 'Arms Control' "
Dædalus, Winter 1961: page 204.

Arms Control and International Politics

EFFORTS TO CONTROL ARMS have a long and mixed record in human history. In the fifth century B.C., “the Spartans proposed that not only should Athens refrain from building her own fortifications, but that she should join them in pulling down all the fortifications which still existed.” Thucydides reports that while the Athenians sent a delegate to negotiate with Sparta, they simultaneously “built their fortifications high enough to be able to be defended.”¹ In more recent times, defenders of arms control point to the successful demilitarization of the Great Lakes by the United States and Canada in 1817, and the 1925 Geneva Convention against first use of chemical weapons. Opponents note that the Washington (1922) and London (1930) agreements limiting naval forces were evaded by Germany and Japan in the years before World War II.

Broadly defined, arms control refers to efforts to limit the numbers, types, or disposition of weapons. What was new in 1960 was the unprecedented setting of nuclear vulnerability that had become increasingly clear after the mid-1950s. The general insight that informed the 1960 approach was not new. Sovereign states face a security dilemma when their efforts to make themselves feel more secure by building weaponry make their opponents feel more insecure. Through reassurance of the adversary a state can help to alleviate the security dilemma—in other words, to create common security.

Among the important new applications of this approach in 1960 was the idea that unintended nuclear war could be triggered by the opponents’ fear and that the risk of unintended nuclear war could be

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reduced by the development of invulnerable second-strike capabilities on both sides, even if that meant larger forces. Moreover, because escalation processes might spiral out of control, it was important to stigmatize nuclear weapons and avoid limited nuclear wars, even if that meant adding conventional forces to raise the nuclear threshold. Instead of opposing deterrence through armament, the new approach focused on types rather than numbers of weapons and saw arms control as closely integrated with defense policy.

For the next thirty years arms control became a central issue in the US-Soviet relationship. The two countries signed some two dozen agreements limiting types, numbers, and location of weapons; limiting tests and proliferation; and providing for exchange of information and inspection. In that sense, arms control became a central part of the discourse about defense. But some of the agreements owed little to the new insights and their net effect was disputed. Skeptics continued to argue that arms control could not alter the basic security dilemma of sovereign states in an anarchic world. Defenders replied that communication could allow players in prisoner's dilemma situations to avoid worst-case outcomes. Still others contended that it all depends on the nature of the players—arms control might not work in a world of Hitlers. Thus, varying Western assessments of Soviet motives and attitudes during the Cold War strongly colored judgments of the value of arms control agreements.

THE 1980s' DEBATE

The 1980s began with an intensification of debate in domestic politics about the merits of arms control. Many in the newly elected Reagan Administration contended that arms control was more of a problem than a solution. Arms control was blamed for lulling public opinion in Western democracies into accepting Soviet superiority. Negotiations should be delayed until, like ancient Athens, our fortifications had been rebuilt. However, the pressure of public opinion brought the Administration back to the bargaining table before rearmament could be completed. In fact, during the 1980s the Soviet Union added more strategic nuclear warheads than did the United States, while little was accomplished at the negotiating table until 1986. Then, in its last two years, the Reagan administration signed an Intermediate Nuclear Forces (INF) Agreement, causing

consternation among many of the president's most ardent supporters. In addition, the administration pressed for a Strategic Arms Reduction Treaty (START) almost up to the time Reagan left office.

Some Cold Warriors were outraged by Reagan's new view of the Soviets, even to the point of calling Reagan a useful idiot for Soviet propaganda. But other conservatives based their skepticism on a more general critique of arms control that continues in the current period. Irving Kristol, for example, reiterated his charge that arms control agreements do not lead to enduring settlements of conflict but instead, "tend to be slow, tedious, and conducted in an atmosphere of skepticism and suspicion. As a result, agreements are likely to have limited scope. Moreover, technological innovations in weaponry, to say nothing of changes in national leadership, will always make an arms control treaty vulnerable to conflicting interpretations or outright indifference."²

Some aspects of this case against arms control have merit. Weapons are symptoms rather than basic causes of hostility. The legalistic approach to seeking compliance with treaties can lead to disproportionate responses in a period of extreme distrust. "Violations" of low intrinsic concern in terms of security are read as significant indications of malign intentions. Moreover, arms control negotiations may sometimes distort defense programs. For example, some observers charge that the MX missile program was shaped to fit SALT criteria. Arms control may also slow change. For example, over the past decade, NATO countries have moved toward a reduced reliance on short-range nuclear weapons, such as artillery based on the front lines in Europe. It is quite plausible that efforts to negotiate these reductions in the context of formal arms control agreements would have slowed rather than speeded this stabilizing change.

Even some of the founding fathers of modern arms control, such as Thomas Schelling, have expressed skepticism about too much reliance on formal agreements.³ Many strategists believe that managing types of weapons, their vulnerability, and their susceptibility to central control is more important than managing the number of weapons. Reductions are not per se good but must be judged in light of these characteristics. But there is clearly a gap between the strategists' and the public's perception. Strategists tend to give priority to crisis stability over arms race stability. At low numbers, deceptive practices, hidden weapons, and breakouts from treaty

constraints could make larger differences to security than at higher levels.

ASSESSING THE RECORD

Modern arms control had three canonical objectives: to reduce the risk of war; to limit its damage if it occurred; and to reduce the costs of armaments. In a world of 50,000 nuclear weapons, most of which have been added since 1960, it is hard to make a case that arms control has done anything for damage limitation. Indeed, in banning defenses the Antiballistic Missile (ABM) Treaty essentially gave up on that goal. Skeptics also cite the growth in weaponry over the past thirty years to argue that arms control has done nothing to constrain costs of armaments. But here the case is more mixed. The proper comparison is not with the past but with a counterfactual world. How would defense budgets have differed in the absence of arms control agreements? While strategic weapons agreements may have provided some limits on worst-case analyses, it is difficult to make a case for significant effects resulting from the agreements on offensive forces. On the defensive side, however, it is easier to imagine a world with costly yet ineffective ABM systems deployed in the absence of the ABM Treaty. And that, in turn, might have driven the number of offensive weapons still higher in efforts to overcome the opponent's defenses.

The critical question, of course, is whether arms control reduces the risk of nuclear war. Since that issue is treated at length in another article in this volume, my discussion will be brief. As Robert Jervis points out, arms control has focused heavily on a spiral theory of wars by inadvertence in which neither side fully intends the outcome.⁴ By providing reassurance as well as information, arms control measures such as the Hot Line, and provisions on noninterference with national technical means of verification have probably had a beneficial effect. In addition, by slowing the spread of nuclear weapons to states with weak command and control systems, the Nonproliferation Treaty (NPT) may have prevented wars like that between Iraq and Iran from becoming nuclear.

In the US-Soviet case, the crucial question is again counterfactual. How likely does it seem that a war would have broken out in the absence of arms control agreements? Many observers believe that

“the long peace” is overdetermined with some crediting the existence of nuclear fear, others stressing bipolarity, and still others emphasizing the obsolescence of war among developed countries.⁵ These views suggest, at best, a minor causal role for arms control. Even the theoretical cause of war which was the central concern in 1960, the reciprocal vulnerability of strategic forces to a first strike, was diminished less by arms control agreements than by the development of ballistic missile submarines in the late 1950s. Minerva’s owl may already have flown before *Dædalus* was published. Soon after 1960, the balance of terror became robust rather than delicate. It has remained robust for the last three decades, though restrictions of ABM systems may have helped to prevent the reemergence of the narrow margins associated with a delicate balance.

A careful study of the US-Soviet arms control record in the Cold War period concluded that critics’ fears that arms control would lull the public and weaken the defenses of the democracies has not been borne out. On the other hand, the hopes of proponents that arms control would save money and lead to dramatic reductions were not borne out either.

What emerges above all is the modesty of what arms control has wrought. Expectations, for better or worse, for the most part have not been realized. The stridency of the debate, however, provides little clue to this modest reality If the history reveals anything, it is that arms control has proven neither as promising as some had hoped nor as dangerous as others had feared.⁶

Arms control agreements during the Cold War were concluded only when neither side had an appreciable advantage, and agreements could not be reached when either side had a strong preference for development of a new weapon.

ARMS CONTROL AND STABILITY

If crisis stability was the central intellectual gain of the 1960 revolution in arms control, it is worth noting that both countries remained ambivalent about it throughout the three ensuing decades. In that sense, the victory of modern arms control thought was incomplete. Both countries continued to develop new nuclear systems, including those designed for prompt attack against the other

side's hardened nuclear forces. At the same time, both sides went to considerable expense unilaterally to develop forces which were relatively invulnerable to a first strike. This may be explained as simple prudent adaptation. While the Soviets placed far fewer of their warheads at sea, they made major investments in developing a submarine-based force which could be held in protected sanctuaries. Some Americans spoke nervously about nuclear vulnerability out of concern for the survivability of fixed land-based missiles, but ICBMs constituted only a quarter of American strategic warheads. In contrast to their rhetoric, both sides made heavy investments in the redundant and invulnerable second-strike capabilities that contribute to stability in a time of crisis.

Why then did both resist agreement on a common norm of second-strike forces only and continue to invest in forces which represent a capability for first strike against fixed targets? Some observers believe it was because the two sides had totally different military and strategic cultures. Certainly there were conceptual and historical differences reflected in the differences in force structures and in the role of domestic politics. However, there were also some very basic similarities in the situation both countries faced. Developing a norm about nonuse and building it into force structures was blocked on both sides by the classic usability dilemma. If no one believes nuclear weapons can be used, they lose their deterrent value. Yet if used, they may destroy the values they are supposed to protect.⁷ This dilemma created ambivalence in both countries and set limits on the development of the agreements on nonuse. The need to extend deterrence to allies, inherently less credible than deterring attacks against one's homeland, sharpened the dilemma. Instead, both sides developed a complex conception of nuclear stability which traded off three different dimensions of stability.

Crisis stability referred to the absence of incentives to preempt in time of crisis. Arms race stability referred to the absence of incentives to accelerate the development of new arms. Political stability referred to the absence of incentives to take political actions (such as pressure on the other side's allies) that might lead to crises or nuclear war in the first place.⁸ When the Soviets were pressed to explain why they had invested so much in the development of large, vulnerable land-based missiles which threatened American ICBMs, their reply

was that such missiles frightened the Americans and thereby deterred Washington from taking risky actions which might lead to war.

One could hear similar arguments from Americans. For example, Defense Department officials, justifying the placement of MX missiles in silos, argued that they were important for threatening the Soviets and thereby deterring them from risky political actions. As one US Air Force officer put it, "Deterrence is more important than survivability." Both countries had groups who stressed one dimension of stability more than the other. Both countries' force structures and doctrines became more similar over time. In fact, the development of the American countervailing strategy of the late 1970s was strongly affected by the Soviet force posture. While important differences remained (most notably in air defense), both countries practiced a policy of simultaneously investing in crisis stability—albeit as a unilateral goal for their own forces rather than for their adversary—and in "first-strike forces" for political or deterrent stability. The result, of course, was not helpful for arms race stability. Whether because or in spite of arms control theory, the paradoxical result was a great increase in nuclear warheads and delivery systems during the three decades of Cold War arms control.

Based on this modest record, critics like Kristol argue that future policy should focus not on arms control but on politics as the key to stability. In extreme form, the skeptics' argument is that arms control is impossible when necessary and unnecessary when possible. But the critics (and some defenders) miss an important point: arms control *is* part of a political process. Too often the experts judge arms control proposals on their technical details rather than on their political significance. For example, the INF agreement was not much military help. In fact, one could argue that, from the point of view of crisis stability, by removing long-range nuclear missiles from Europe, rather than starting with the short-range artillery, the INF agreement seized the wrong end of the stick. But the political significance of the INF agreement, by improving the US-Soviet relationship in the second half of the Reagan Administration, far outweighed the technical problems related to the details of military doctrine.

ARMS CONTROL AND LEARNING

The 1960 approach to arms control, with its heavy reliance on game theory, tended to focus on unitary actors. This was quite

consistent with the dominant realist approach to international politics, with its emphasis on the actions of unified states and lack of attention to how state preferences are formed (or reformed). More recent work has paid attention to domestic and psychological factors, and how states learn their interests and reformulate them. This perspective raises a different set of questions about the possible effects of arms control. If we do not assume unitary actors and stable preferences, we can ask whether arms control has contributed to the reformulation and institutionalization of new definitions of national interest.

Perceptions of national interest may change because of domestic shifts of power or generational changes. They may also change through cognitive processes or learning: learning is the alteration of beliefs by new information.¹⁰ One can imagine a continuum of cognitive changes from simple adaptation in which tactics are changed but not ends, through simple learning in which some ends and means are changed but not deep-seated ends, to complex learning in which actors experience change deep in the chain of ends and means.¹¹ Simple adaptation is quite consistent with the realist model of international politics—as the environment shifts, the actors keep their goals but adapt their tactics. But learning which involves awareness of newly understood causes and unwanted effects and which leads to adjustment of both ends and means is not readily captured by traditional models. In such circumstances, a simple power model of change may be highly misleading.

It is worth noting that the alteration of beliefs by new information does not always increase effectiveness. Sometimes new information can be misleading or mistakenly applied. Many lessons of history are misread. Neither individuals nor societies are clean slates. New information affects prior beliefs, but its reception and interpretation is also affected by prior beliefs. The extent and accuracy of learning depends upon the strength of the prior beliefs and upon the quantity and quality of the new information. Psychological studies of perception and misperception help us to understand such barriers to learning. Political and institutional factors also can skew learning.¹² Cognitive change is important but it rarely stands alone. As a result, there can be negative as well as positive learning. Yet, despite these

cautionary remarks, learning perspective can be a useful supplemental approach to political change.

Arms control has been a major form of interaction between the United States and the Soviet Union over the past thirty years. It is easier to note where arms control has contributed to changes in US perceptions and policies, but a case can be made that it also affected Soviet learning and redefinition of national interests. Certainly Soviet policy has changed dramatically over the past decade. Those who believe in immutable strategic cultures¹³ have a hard time explaining new innovations in Soviet policy such as unilateral cuts, asymmetrical reductions, reductions in the defense budget, acceptance of intrusive verification, military-to-military visits to sensitive facilities, Soviet acceptance of loss of control over Eastern Europe and of the Warsaw Treaty Organization.

While arms control may become the beneficiary of these changes, it is obviously not their major source. Causation is complex, and the roots of Soviet policy change lie deep in Soviet internal problems. An overly centralized economic system, Soviet economic decline, generational change, and foreign policy setbacks go far to explain the origins of the so-called "new thinking" in foreign policy. New thinking has downgraded the concept of class struggle as the basis for international affairs and has stressed universal human values. In military affairs, new thinking has introduced the standard of reasonable sufficiency in place of superiority or parity. Arms control became a central concept in Gorbachev's approach to international affairs and helped to justify reductions in the secrecy of military matters. His slogan "common security" allowed much greater transparency in Soviet military activities. The evolution of Soviet arms control proposals reflected and reinforced these new dimensions of Soviet thinking.

Even though the roots of these changes lie deep in Soviet domestic affairs, the form which the changes took was not predetermined by domestic problems. As Robert Legvold has shown, many of the concepts expressed in the Soviet Union's new thinking had origins in Western arms control thought and were imported to the Soviet Union through contacts at the unofficial institute and academy level, as well as at the official level.¹⁴ Indeed, some ideas, such as sufficiency, which had become discredited in Western debates in the 1980s, reappear in the new thinking of the Soviet Union.

Lest this account of Soviet learning seem too dependent upon one individual, Gorbachev, it is worth noting that learning occurred even before 1985. In fact, in the early 1980s Sovietologists were reporting “evidence from many different fields that the scope and quality of specialists’ advice to policymakers had increased,” and that “a learning process that has lead to growing sophistication and emancipation from doctrinal stereotypes on the part of a relatively small number of members of the intellectual and political elite.” This included increased complexity in Soviet decision making on arms control.¹⁵ Subsequently, Soviet writings about nuclear weapons and arms control became more detailed and sophisticated with the development of various institutes under the rubric of the Academy of Sciences. While the role of the civilian analysts blossomed in the glasnost period, the origins can be seen in writings from the 1970s.

In addition, anecdotal evidence tends to confirm these generalizations. An interesting anecdote is Shevchenko’s description of the strategy by which Andrei Gromyko involved the reluctant Soviet military in arms control negotiations. He lobbied to have rising young officers placed on the Soviet delegation and insisted on a unique procedure by which all seven delegates had to sign cables to Moscow. “It’s hard to discuss the subject with the military,” Gromyko told Shevchenko, “but the more contact they have with the Americans, the easier it will be to turn our soldiers into something more than just martinets.”¹⁶ Shevchenko cites Marshal Orgarkov as “an example of this changing outlook and temperment of younger officers on the Soviet delegation,” and General David Jones found that in his SALT II discussion with Marshal Orgarkov, “we could get to the specifics *without* all the dialectical rhetoric.”¹⁷ In some instances in SALT I, transnational or transdelegational partnerships of interest developed.¹⁸

In short, while arms control did not cause Soviet “new thinking,” the fact that arms control was a major form of communication about an area of common interest between the United States and the Soviet Union for nearly thirty years may have contributed significantly to the content of the changed policies in the Soviet Union. In other words, if we think of arms control as a form of communication, it may have contributed (and may contribute) significantly to the redefinition of national interests, a political

factor not adequately accounted for in the traditional views of international politics.

ARMS CONTROL AND INSTITUTIONS

Just as traditional views of international politics understate the importance of communication and learning in the establishment of preferences, so also do they understate the importance of institutions in international politics. Many analysts and statesmen believe that institutions play a trivial role. In a world of sovereign states where the ultimate recourse is self-help and military force, institutions that constrain state behavior might seem irrelevant, but in reality, current world politics is richly endowed with institutions. By institutions, I mean persistent sets of norms that shape expectations and constrain behavior. In formality and concreteness they range from regimes of explicit rules and organizations at one end of the spectrum through private networks and informal conventions at the other.¹⁹

Institutions enhance the prospects for cooperation among states by increasing the flow of information and opportunities to negotiate; by helping to monitor compliance with commitments; and by shaping expectations about the future context of commitments. Moreover, within the state international regimes may help states define their interests by keeping multiple interests from conflicting; by reinforcing the discipline necessary for the pursuit of long-run self-interest; and by enhancing contacts and communications which affect learning by key domestic actors.

In a sense institutions are the shadow of the past as they help to establish expectations and set bounds to change. It is interesting to observe in the current political turmoil how statesmen use regional economic institutions such as the European Community and security institutions such as NATO or the Conference on Security and Cooperation in Europe to try to stabilize expectations and create structures that shape the rapidly changing domestic political and economic conditions. Although institutions are often ruptured when change exceeds certain rates, they do help to slow and channel change.

Thirty years has left a large residue of arms control institutions. With regard to accidents and crisis management, there are institutions such as the Hot Line, the Accidents Reduction Measures,

the Incidents at Sea meetings, and military-to-military consultations. With regard to nonproliferation, there are institutions such as the Nonproliferation Treaty, the International Atomic Energy Agency, and the Nuclear Suppliers' Guildelines. And in the US-Soviet bilateral strategic relationship, there are the institutions of the Partial Test Ban Treaty, and, most centrally, the Antiballistic Missile Treaty.

In addition, for at least a decade, SALT formed a partial security regime based on the acceptance of parity, recognition of mutual vulnerability, and agreements to limit both offense and defense. These principles and norms were supplemented by specific rules in treaty form and an institutional framework calling for the Standing Consultative Commission to discuss issues of compliance. Both sides defined their short-run interests by adhering to such rules as not interfering with the national technical means of verification and by dismantling nuclear systems that exceeded treaty restraints.²⁰ Moreover, there was evolution in internal bureaucratic definitions of self-interest. As the former Chairman described the Joint Chiefs of Staff, "as we got deeper into arms control came recognition of its increasing importance—that neither side could gain through a nuclear war." During debates about whether or not to abide by the SALT II Treaty early in the Reagan Administration, "the arguments not to undermine SALT II were by these military officers."²¹ Similarly, Shevchenko confirms that the arms control process broadened the thinking of the Soviet military.

Although the SALT regime suffered because of a gradual erosion in the American definition of self-interest in the early mid-1980s, at least among part of the American political elite, the institutional effect was still strong. Had there been no institutional effect, the new American administration in the 1980s would have found it far easier to escape from what it saw as the confines of the interim agreement on offensive weapons, as well as from the ABM Treaty. In addition, if one looks at bureaucratic pulling and hauling over new weapons programs, the existence of arms control treaties helped to set outer bounds which in turn helped to limit some of the worst-case analyses. Thus, not only did arms control help in defense planning, but it may have contributed indirectly to the saving of resources.

Nonproliferation is another area of successful institutionalization of arms control. A number of specific rules and institutions have been

developed to implement the norms of the Nonproliferation Treaty. Multilateral devices have been supplemented by regular bilateral talks between the United States and the Soviet Union. These rules and institutions constrained short-range self-interests. One can point to a number of instances in which the Soviet Union could have gained impressive short-range political advantage with third countries but decided to forego them (for instance, over South Africa in the United Nations in 1978, or over the issue of a CTB at the 1985 Review Conference).

It is worth noting that even when overall political relations between the United States and the Soviet Union worsened in the early 1980s and the Soviets cut off other forms of arms negotiations after the deployment of the new NATO missiles in Europe in 1983, the nonproliferation talks continued. In the words of a high-level participant, "our early discussions were somewhat rigid regarding the hard cases, but after 7 or 8 meetings, they have become more frank. They now give us detailed information, and when they bring up our hard cases, it is not in the old rhetorical way."²² The institutions also helped to reshape long-range definitions of self-interest in the United States. For example, as a candidate in 1980, Ronald Reagan declared that nonproliferation was none of our business. Regularly scheduled meetings provided an avenue for cooperation to continue until the American policy changed, and the institutional framework helped to delink the issue from the cycles of the overall political relationship.²³

In short, the institutional effects of arms control helped to shape expectations in ways that limit worst-case analyses, reassure allies as well as adversaries, and preserve areas of cooperation from the short-run vicissitudes of political change. They also provide opportunities for contacts which may contribute to learning. They do this by providing information that alters the way key participants understand their interests or see new cause and effect relationships. Included in this information are procedures for transparency and timely warning through inspection or verification which tend to discourage worst-case assumptions. From the perspective of learning and institutions, arms control may have played a more significant role in the changes of the past thirty years than one would give it credit for from the perspective of counting weapons

or by the assumptions of traditional approaches to international politics.

THE FUTURE OF ARMS CONTROL

Arms control ideas and institutions were shaped in a bipolar world. Now that world is changing, although so long as an intense super-power hostility blanketed world politics, the gradual diffusion of power was not readily noticeable. Now, with the decline of Soviet power and the Soviet withdrawal from many of its Third World positions, other changes in the nature of world politics have become more visible, and even if Gorbachev's policies were reversed, a repressive regime in the Soviet Union would not stem (indeed might accelerate) the decline of Soviet power. This diffusion of power in world politics has important implications for the future of arms control.

Some portray such changes as a decline of American hegemony, but the concept of decline is a misleading way to depict the situation.²⁴ Nor is it accurate to refer to the emerging situation as "multipolar" if that means returning to a military balance among a number of nations with roughly equal power resources, analogous to the period before 1945. The word "polycentrism" comes closer to describing the current diffusion of power. As world politics becomes more complex, all major states are less able to achieve their purposes. Although the United States has leverage over particular countries, it has far less leverage over the complex system as a whole. But it is not alone in this situation. All great powers today are less able to use traditional power resources to achieve their purposes because private actors and smaller states have become more important on many issues.

Several trends contribute to the diffusion of power. The changing technologies of communications and transportation have had a revolutionary effect by increasing international economic interdependence and by increasing the ability of private transnational actors to rapidly shift production and technology. Another dimension of power diffusion is the processes of modernization, urbanization, and increased nationalism that makes military intervention and external rule more costly.

Particularly relevant to arms control is the spread of technology that enhances the capabilities of poor states. While the superpowers have kept a large lead in military technology, more countries are acquiring sophisticated weapons capabilities. Twenty countries could now make chemical weapons and fifteen Third World nations could be producing their own ballistic missiles in the 1990s.²⁵ In addition to the five states that had the bomb when the Nonproliferation Treaty was signed in 1968, India, Pakistan, Israel, and South Africa now have a nuclear capability, and others may follow. Although a small nuclear capability does not make these states contenders for global power, it does increase the potential cost of regional intervention by larger powers. Technology also enhances the power of private groups. For instance, hand-held antiaircraft missiles helped guerrillas in Afghanistan, and new plastic explosives are effective tools for terrorists.

Finally, the changing nature of the issues in world politics is diminishing the ability of the great powers to control their environment. An increasing number of issues do not simply pit one state against another; in some issues, states try to control private, transnational nonstate actors. The solution to many issues of transnational interdependence will require collective action and cooperation among states. Examples include ecological changes such as acid rain and global warming, health epidemics such as AIDS, illicit trade in drugs, and control of terrorists. While force may sometimes play a role, traditional instruments of power are rarely sufficient in dealing with such issues. The ability of the great powers to control their environment and get what they want in the 1990s is likely to be less than traditional indicators of military power would suggest.

Military force has become more costly for great powers for at least four reasons. One is the muscle-bound nature of nuclear force; it is hard to imagine any political goals commensurate with the devastation of a nuclear war. Second, it is difficult for great powers to rule nationalistic populations. Third, the use of military force may often prove too costly by interfering with the links of transnational economic interdependence. Finally, at least among Western democracies, there are growing normative and moral constraints on the use of force.

Some political scientists have gone so far as to argue that war will follow the practices of dueling, slavery, and colonialism into obso-

lescence.²⁶ An alternate view is that the increased cost of using military force will restrict large countries more than small countries, and that the net effect will be an erosion of the traditional hierarchy of world politics. The incidence of war is now predominantly located in poor areas of the globe. In addition, violence in troubled regions like the Middle East resembles the classic security dilemmas described by Thucydides more than the modern transnational interdependence among developed countries. Private transnational terrorist groups readily use force and have increasing capacity to do so.

If this portrait of current trends is even partially correct, the bipolar focus of the past will not be sufficient. Analysts will need to think more broadly about the role of arms control in world politics. In fact, on many of these issues, the United States and the Soviet Union will find themselves on the same side, for example, in stemming the proliferation of nuclear weapons, ballistic missile technology, and chemical and biological warfare. This does not mean that the classical agenda of arms control is irrelevant. Bilateral US-Soviet arms control will remain important, but the diffusion of power will require more attention to the multilateral dimension of arms control.

For four decades the two superpowers built impressive military arsenals. In a new political climate, they may begin dismantling those arsenals. If so, arms control in the post-Cold War era may lead to major reductions and will save resources. But state military forces will still be needed because of normal great power politics, because of the diffusion of power, and because there is always a prospect that the Soviet Union (or a nationalistic Russia) could change course. Thus, careful attention is needed to make sure that dismantling the military edifices of the Cold War does not create technical instabilities. At the same time, technical details should not blind us to the fact that the key role of arms control is political in the sense of creating communication and reassurance.

Crisis stability may have been the key insight of the new thinking about arms control in 1960, but arms controllers have often focused on it in a single-minded, almost theological manner which interfered with other objectives such as arms race and political stability. Crisis stability is a necessary but insufficient condition for political stability. Yet crisis stability has been used to justify expensive but marginal strategic programs and to criticize START reductions. In fact, given the high levels of strategic weaponry, conditions that justify serious

worry about crisis stability are unlikely to arrive soon. Concern about crisis stability will be necessary. If truly deep reductions are negotiated, it will be critical to pay close attention to vulnerability and crisis stability. Similarly, if concerns about ballistic missile and nuclear proliferation lead to deployment of a thin ballistic missile defense system, it will be important to negotiate limits which prevent it from evolving into a system that would raise questions about crisis stability. In the 1990s, however, equal attention must be paid to political stability and the communication and institutional roles of arms control.

Arms control has crucial political roles. The first is to reassure the publics in democracies; arms control is an inevitable and important part of the domestic political power related to defense. Despite what the strategists may say about focusing solely on crisis stability rather than numbers, the public *does* care about reductions in numbers because it is difficult to grasp other measurements or to present them in clear political terms. Because they are a readily perceived index, numbers matter, and since a major benefit of arms control is domestic political reassurance, proposals such as general ceilings and reductions can make important contributions to stability even if the number of weapons alone is a poor measure of the risk of nuclear war.

A second political role of arms control is to provide reassurance among adversaries. Arms control is sometimes divided into *structural arms control* that deals with force postures, and *operational arms control* that deals with the operation of forces. But the two dimensions are closely related. In a sense, all arms control is a confidence- and security-building measure. By increasing transparency and communication among adversaries, worst-case analyses are limited and security dilemmas are alleviated. It may be that the most important aspects of the SALT treaties were the provisions on open skies for satellite reconnaissance, agreed counting rules for various types of weapons, and the Standing Consultative Commission for discussion of alleged violations and misunderstandings. In that sense, informal operational arms control and formally negotiated reductions are not exclusive alternatives; they can complement one another.

The agreements on incidents at sea, crisis centers, confidence- and security-building measures in Europe, and the recent agreement on the Prevention of Dangerous Military Activities have been scorned by some experts as the "junk food" of arms control. However, the

classical distinctions between reductions and measures to build confidence and security will begin to blur in the future. Both structural and operational arms control are parts of a larger process of political reassurance among adversaries. While Gorbachev's glasnost may have reduced the uniqueness of increased transparency and communication through the arms control process, both formal reductions (such as the asymmetrical reductions in conventional forces in Europe) and informal agreements that provide access to information can help lock in gains for European security.

Once again, it is important to realize that arms control is of secondary importance to the forces of change in Europe. For example, as German unification sped up, the Conventional Forces in Europe (CFE) talks slowed down. But once political understanding was reached on the role of Germany, the CFE talks helped to channel expectations and monitor compliance and created an institutional framework that made policy reversals more difficult. That framework provides statesmen with a reassurance that events will not get completely out of hand. This situation in Europe also illustrates the third political role of arms control, the establishment of regimes for dealing with international security. Arms control can become one of the tools for helping to manage processes of political change. By treating the military relations among states as a problem of common security, arms control agreements help legitimize some activities and discourage others.

Security regimes, however, cannot be kept in totally separate, watertight compartments. For example, the long-term management of nuclear proliferation would be improbable in the context of a totally unconstrained US-Soviet nuclear arms race. Similarly, it is difficult to imagine management of the diffusion of chemical and biological weapons technology if the United States and the Soviet Union are engaged in unconstrained developments in those fields. Skeptics point out that most countries develop nuclear and chemical weapons because they have security problems with their neighbors, not because the United States or the Soviet Union promises to disarm. That is mostly correct. The existence of Article 6 of the Nonproliferation Treaty, in which the superpowers promise to reduce their arsenals, was not a significant determinant of nuclear policy for Pakistan, South Africa, or Brazil. On the other hand, a renewal of the Nonproliferation Treaty in 1995 will be harder if it must take place

in the context of a totally unconstrained US-Soviet nuclear arms competition. As one looks further into the future and contemplates the problems of diffusion of power and the spread of technologies of mass destruction, bilateral US-Soviet arms control cannot be divorced from the multilateral arms control problem. On the contrary, the management of security in the midst of the diffusion of power will require more attention to the development of broad international regimes. In addition, processes of learning about mutual security in a nuclear age, and using arms control as a means of communication will be transmitted to regional settings.

The future role of arms control will be more political and will involve a broader spectrum of political concerns than during the Cold War years. Analysts will have to pay more attention to the multilateral dimensions of arms control involved in problems of proliferation and more attention to the relationship between bilateral and multilateral arms control. They will have to pay more attention to the relationship of arms control to regional political processes, and how arms control relates to other instruments and other goals in foreign policy. Even if the particular approaches of 1960 were heavily influenced by the circumstances of the early phases of nuclear vulnerability, the central insight about alleviating the security dilemma through reducing the fears of one's opponent remains valid in a post-Cold War world.

In an effort to look at the long-term future of nuclear weapons, Graham Allison, Albert Carnesale, and I concluded that there were two hopeful paths.²⁷ Technologically, hope lay in removing nuclear weapons from military roles—what we called lengthening the fuse between political disputes and the nuclear powder keg. Politically, hope lay in improved political relations between the United States and the Soviet Union as well as in the construction of multilateral security regimes. Analogous approaches will have to be applied to regional conflicts.

In short, arms control has to be seen as a political process of communication, learning, and development of institutions for international security. That will require the full fruition of the 1960 insight about the possibility of using communication to alleviate the classical problems of the prisoner's dilemma and realizing the military interdependence symbolized by the term "common security."

ENDNOTES

- ¹Thucydides, *The Peloponnesian War* (New York: Penguin Books, 1972), 88.
- ²Irving Kristol, "Forget Arms Control," *New York Times*, 12 September 1989.
- ³Thomas Schelling, "What Went Wrong with Arms Control?" *Foreign Affairs* (Winter 1985-1986).
- ⁴See the article by Robert Jervis in this volume.
- ⁵John L. Gaddis, "The Long Peace: Elements of Stability in the Postwar International System," *International Security* 10 (4) (1986); John Mueller, *Retreat From Doomsday: The Obsolescence of Major War* (New York: Basic Books, 1989); and Kenneth Waltz, *Theory of International Politics* (Reading, Mass.: Addison-Wesley, 1983).
- ⁶Albert Carnesale and Richard Haass, eds., *Superpower Arms Control: Setting the Record Straight* (Cambridge: Ballinger Books, 1987), 35.
- ⁷I discussed the usability dilemma at greater length in *Nuclear Ethics* (New York: Basic Books, 1986), 53ff. In his article above, Jervis follows Glen Snyder in referring to the problem as the stability/instability paradox.
- ⁸On the technical and political determinants of stability, see Joseph S. Nye, Jr., "The Impact of Technology on Nuclear Deterrence and Strategic Arms Control" in F. Stephen Larrabee, ed., *Technology and Change in East-West Relations* (New York: Institute for East-West Security Studies, 1988).
- ⁹Conversations at Offutt Air Force Base, February 1986. A Soviet example occurred in 1965, when General Talenskii concluded that "in our days there is no more dangerous illusion than the idea that thermonuclear war can still serve as an instrument of politics," while Lt. Col. Rybkin warned that "any *a priori* rejection of the possibility of victory is harmful because it leads to moral disarmament, to a disbelief in victory and to fatalism and passivity." Quoted in David Holloway, *The Soviet Union and the Arms Race* (New Haven: Yale University Press, 1984), 164.
- ¹⁰On learning, see Lloyd Etheredge, *Can Governments Learn?* (New York: Pergamon Press, 1985), 143; also "Government Learning: An Overview," in Samuel L. Long, ed., *Handbook of Political Behavior*, vol. 2 (New York: Plenum Press, 1981), 73-161; Ernst Haas, "Why Collaborate? Issue-Linkage and International Regimes," *World Politics* 32 (April 1980): 390.
- ¹¹Chris Argyris and Donald Schon, *Organizational Learning: A Theory of Action Perspective* (Reading, Mass.: Addison-Wesley, 1978). Their terminology is "single-loop" and "double-loop" learning.
- ¹²Richard Neustadt and Ernest May, *Thinking in Time* (New York: Free Press, 1986). See also John D. Steinbruner, *The Cybernetic Theory of Decision* (Princeton: Princeton University Press, 1985); Robert Jervis, *Perception and Misperception in International Politics* (Princeton: Princeton University Press, 1976), chap. 6. For a discussion of theories of the affects of prior beliefs and some interesting examples, see Deborah Larson, *Origins of Containment* (Princeton: Princeton University Press, 1985).

- ¹³See Colin Gray, *Nuclear Strategy and National Style* (Cambridge: Abt Books, 1986).
- ¹⁴See Robert Legvold, unpublished manuscript.
- ¹⁵Thane Gustafson, *Reform in Soviet Politics* (Cambridge: Cambridge University Press, 1981), chap. 6; Alexander Dallin, "The Democratic Sources of Soviet Foreign Policy," in Seweryn Bialer, ed., *The Domestic Context of Soviet Foreign Policy* (Boulder, Colo.: Westview Press, 1981), 358; Rose E. Gottemoeller, "Decisionmaking for Arms Limitation in the Soviet Union," in Hans Guenther Brauch and Duncan Clark, eds., *Decisionmaking for Arms Limitation* (Cambridge: Ballinger, 1983), 53ff.
- ¹⁶Arkady Shevchenko, *Breaking with Moscow* (New York: Ballantine, 1985), 270.
- ¹⁷*Ibid.*, 271; General David Jones, quoted in Charlton, *From Deterrence to Defense: The Inside Story of Strategic Policy* (Cambridge: Harvard University Press, 1987), 83.
- ¹⁸Raymond Garthoff, "Negotiating SALT," *The Wilson Quarterly* (Autumn 1977): 79.
- ¹⁹See Robert O. Keohane, *International Institutions and State Power* (Boulder, Colo.: Westview Press, 1989), chap. 1. See also Joseph S. Nye, Jr., "Neo-Realism and Neo-Liberalism" *World Politics* 40 (January 1988): 235-51.
- ²⁰See Joseph S. Nye, Jr., "Nuclear Learning and U.S.-Soviet Security Regimes," *International Organization* 41 (3) (Summer 1987).
- ²¹General David Jones, quoted in Charlton, 82-83.
- ²²Interview, US State Department, October 1986.
- ²³See Joseph S. Nye, Jr., "Non-Proliferation," in Alexander George, Philip Farley, and Alexander Dallin, eds., *U.S.-Soviet Security Cooperation: Achievements, Failures, Lessons* (New York: Oxford University Press, 1988).
- ²⁴For the debate on decline, see Paul Kennedy, *The Rise and Fall of Great Powers: Economic Change and Military Conflict from 1500 to 2000* (New York: Random House, 1987); see also Joseph S. Nye, Jr., *Bound to Lead: The Changing Nature of American Power* (New York: Basic Books, 1990).
- ²⁵The following discussion of proliferation is based on the discussions of the Aspen Strategy Group summer meeting. See Bobby R. Inman, Joseph S. Nye, Jr., William Perry, and Roger Smith, *Responding to the Proliferation of Nuclear, Chemical, and Ballistic Missile Capabilities* (Lanham, Md.: University Press of America, 1990).
- ²⁶See Mueller.
- ²⁷Joseph S. Nye, Jr., Albert Carnesale, and Graham Allison, eds., *Fateful Vision: Avoiding Nuclear Catastrophe* (Cambridge: Ballinger, 1988).

Next to the abolition of war, the industrialization of the underdeveloped areas of the world is perhaps the most formidable task confronting mankind today. Indeed, these two problems cannot be divorced from each other. Implicit in any discussion of the abolition of war is the assumption that steps will be taken to ensure that deprivation is eliminated in these areas.

A large fraction of the world's population is now starving, but there appear to be no technological barriers to the feeding of a stable world population several times the present size. Although the world population is increasing rapidly, population growth can in principle be stopped. Our high-grade resources are disappearing, but, given an adequate energy supply, we can live comfortably on low-grade resources. Nuclear and other sources of energy appear to be adequate for millions of years. Indeed, it is amply clear that man can, if he wills it, create a world in which human beings can live comfortably and in peace with one another.

Harrison Brown

From "Tasks for a World without War"

Dædalus, Fall 1960: page 1037.

Arms Control, Stability, and Causes of War

IF THE MAIN OBJECTIVE OF ARMS CONTROL is to make war less likely, then any theory of arms control must rest on a theory of the causes of war.¹ Most analysts start with the premise that the anarchical nature of the international system is crucial: armed conflicts occur because no higher authority can prevent them.² This is consistent with the realist tradition, which has dominated American thinking since World War II and which informed the thinking of those who contributed to the Fall 1960 issue of *Dædalus*, even those who rejected much of this perspective. The central assumptions are that states are the main actors in international affairs, that the external environment is more important in determining states' behavior than their domestic characteristics, that this behavior was conditioned by the absence of an international sovereign, and that in this context states must be preoccupied with their own security.

Although this framework does not specify exactly when and where armed conflict will occur, it does give general directions to arms control. First, it tells us that we cannot eliminate the possibility of war without creating world government. Second, it points to states rather than individuals, economic classes, interest groups, bureaucracies, or transnational organizations as the sources of conflict and cooperation in international politics. Third, it could lead analysts to think about which kinds of systems are more war-prone than others. Indeed, there has been a great deal of research on whether bipolar or multipolar systems are more conducive to war.³ But because this factor cannot be altered, arms control analysts were drawn to the

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ways in which states' security policies can produce wars that are inadvertent in the sense that they could have been avoided without sacrificing the states' core values.

It is now almost trivial to note that arms control is made possible by the fact that the superpowers have common as well as conflicting interests even—or especially—in the military arena and that cooperation and conflict are so closely linked that we can hardly analyze one without paying attention to the other. In the political and intellectual atmosphere of the late 1950s, however, this perspective did not come naturally. Memories of McCarthyism were still vivid; the claim that the United States had common interests with the Soviet Union could be seen as dangerously close to being “soft on Communism”; partly because the Soviet Union seemed to be gaining on the West in almost all respects, most members of the American elite were preoccupied with the task of competing with the Communist adversaries. Indeed, while liberals scorned the ideological rhetoric of the Eisenhower administration, they criticized it as much for its failure to develop a vigorous military posture as for its diplomatic clumsiness.

In this era, military policy and disarmament were considered quite separate, if not antithetical. Most of those who were concerned with disarmament believed either that such efforts could only follow a general reduction of conflict between the superpowers or, more frequently, that disarmament would produce such desired political changes. Thus, the linked arguments of the emerging arms control community that each superpower should be concerned about the other's military posture for reasons of mutual safety as well as for competitive advantage, and the view that disarmament and arms control were aspects of security policy, not alternatives to it, were major intellectual and political contributions.

ARMS CONTROL POSTULATES

Thomas Schelling emphasized “the possibility that one can simultaneously think seriously and sympathetically about our military posture and about collaborating with our enemies to improve it.”⁴ He and Morton Halperin similarly introduced *Strategy and Arms Control* as follows: “The essential feature of arms control is the recognition of the common interest, of the possibility of reciprocation and cooperation even between potential enemies with respect to their

military establishments.”⁵ Note that the claim is not merely that the United States and the Soviet Union have some interests in common. Even the most hardened cold warriors were willing to see some areas where the superpowers could negotiate. But the stronger and less obvious argument is that it is in the area of military policy, where common sense and much previous discussion had located the highest degree of conflict, that the superpowers had major reasons to cooperate. In significant measure this argument rested on the broader development of deterrence theory and the claim that, in Brodie’s familiar words: “Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can have almost no other useful purpose.”⁶ A shift in the way war was viewed opened a space for arms control. Measures which were in both sides’ military interests were precluded as long as people thought that wars were absolute struggles in which each side tried only to weaken, thwart, and harm the other and believed that the state could best prevent wars by being in the best position to defeat the other should war occur. As we will see later, many of the criticisms of arms control rest on this conception of deterrence.

By contrast, arms control rests on the theory that wars can occur because states have failed to realize the cooperation which their interests actually entail. For its centrality as well as its disagreement with previous views, the claim that hostile states almost always have important interests of military policy in common can be called the fundamental postulate of arms control. Although perhaps only one side can win a war, both could lose it in the sense of there having been at least one if not several outcomes that would have been mutually preferred to fighting. I use the word *realize* in two senses: to understand and to put into practice. Because the purpose of arms control research was not only academic, the two senses of *realize* were linked: it was hoped that as the intellectual explanation for the potential common interest gained plausibility, the superpowers would act on their improved understanding.

Closely related to this theme is the second postulate of arms control: arms control and security policy are not opposed to each other. “What we have tried to emphasize more than anything else,” Schelling and Halperin noted in concluding *Strategy and Arms Control*, “is that arms control, if properly conceived, is not necessar-

ily hostile to, or incompatible with, or an alternative to, a military policy properly conceived.”⁷ “There is hardly an objective of arms control, that is not equally a continuing urgent objective of national military strategy—of our unilateral military plans and policies.”⁸ In the context of the 1950s, the idea of common interest between scholars concerned with avoiding war and the military was as surprising to some as the idea of common interest with the Soviet Union was to others. In fact, the two conceptions are linked. For if US-Soviet military relations were zero-sum, then it would have been difficult to find overlap between arms control and military policy. Again, what is central is the conception of war and how it might be prevented. To say that there is no conflict between intelligent arms control and intelligent unilateral military policy means that there must be significant common interest between the two sides, and that winning war in the sense of defeating the other’s army can no longer be the dominant goal. Once one argues that conflict is inhibited because both sides realize that to engage in it is to leave them both worse off than if they had been more restrained, arms control is compatible with good military policy because our conception of what makes military policy good has changed. But—and these are troublesome points to which we will return—this claim was not made fully explicit, is subject to rebuttal on both theoretical and practical grounds, and has been the focus for later arguments, although not always couched in these terms.

CRISIS STABILITY

Although there are several ways in which arms control might help realize Soviet-American common interest and shape the conception of proper American military policy, the central contribution of the 1960 *Dædalus* writers was to emphasize the importance of crisis stability. Indeed, this has remained the focus of the theory and, to a lesser extent, the practice of arms control ever since. The basic idea is that even if both sides prefer peace to war, war could result through “the reciprocal fear of surprise attack” to use Schelling’s well-known phrase.⁹ Thus Schelling and Halperin declare: “The most mischievous character of today’s strategic weapons is that they may provide an enormous advantage, in the event that war occurs, to the side that starts it.”¹⁰ A first-strike advantage, coupled with the belief that war

is very likely, if not inevitable, would make it rational for a state to attack even if it was peaceful because the alternative to attacking would be seen, not as peace, but as being attacked. Under these circumstances, the state's efforts to deter the adversary or protect itself in case of war would make war more likely. Observing the state's preparations, the adversary would see the danger of war increasing and would itself make ready to strike. While it was not much mentioned in the early literature, the obvious case which seemed to fit this model was the outbreak of World War I, although the relevant history is actually quite ambiguous and has been subject to fierce dispute. The crucial variables that the arms controllers focused on were the relative advantage of first as compared to a second strike (that is, the vulnerability of weapons systems and their associated apparatus) and the perceived likelihood of war. (We will return to a significant omission—the states' expectations about the value of a world that stays at peace.) Unlike some causes of war, these are manipulable by policy and so are particularly appropriate for a theory that can lead to actions.

DOES THE STATE WANT THE ADVERSARY'S FORCES TO BE VULNERABLE?

While it is clear then that the state should seek to keep the peace by decreasing the adversary's incentives to attack, should it decrease its own incentives to do so? That is, does it want the adversary's forces to be invulnerable and therefore its own population to be vulnerable? The first arms control postulate certainly implies that this could be the case: just because the adversary wants to reduce its vulnerability does not mean that this posture would be bad for the state. Indeed, the logic of crisis stability implies that the danger of war will be reduced if both sides are immune to surprise attack. But the early arms control literature rarely declared that the United States would be better off if the Soviet strategic forces were difficult to destroy.

There are three ways in which this argument might be joined that derive from different, but not conflicting, ways of analyzing the causes of wars. First, one can claim that crisis instability can cause wars without asserting that this is the *only* cause of war, or even the most important one. Schelling and Halperin imply pride of place to this danger when, in the sentence quoted above, they refer to first-

strike advantage as “the most mischievous character of today’s strategic weapons,”¹¹ and the impression of importance is underlined by the lengthy discussion of the topic. But this position could only be justified by comparing this danger to others, which little arms control literature did. Furthermore, it is interesting that Schelling and Halperin do not say that the first-strike advantage poses the greatest danger of war, but rather that this is the most troublesome aspect “of today’s strategic weapons.” There then may be greater dangers arising from sources other than the weapons. The obvious questions are what these other dangers might be, whether concentrating on crisis stability distracts us from dealing with them and, indeed, whether increasing crisis stability, especially by decreasing the vulnerability of Soviet strategic forces, magnifies these other dangers.

These questions can be approached through a second avenue. The theory of war that focuses on crisis instability can be seen as a part of a more general theory that stresses the security dilemma and the spiral model of conflict. The security dilemma arises because many of the ways in which states try to increase their security have the unintended consequence of decreasing the security of others. The spiral model of conflict sees the resulting action-reaction dynamic as accelerated by each side’s inability to understand the other or to see how the other is interpreting its own behavior. These processes generate and magnify conflict, leading to unnecessary wars.¹² But wars can also start through the failure to deter the adversary: if threats led to insecurity and war in 1914, the British policy of conciliation and of taking full account of the supposed security needs of the other side produced war twenty-five years later.¹³ Deterrence theory, in brief, argues that wars are caused by states failing to develop the military strength and credible threats necessary to dissuade others from challenging the status quo. Furthermore, threats are most likely to be believed when the state can carry them out at reasonable cost, which in turn is more likely to be the case when the state can protect its own population (that is, if the adversary’s strategic forces are vulnerable).

Deterrence theory and the spiral model then make very different arguments about the relationship between threats and vulnerability on the one hand and war on the other. Yet, the community of deterrence theorists overlaps very heavily with the community of arms controllers. And in some ways, deterrence and arms control are

compatible, if not complementary. Both point to the importance of credibility and argue that threats and promises must be contingent; that is, the state must show the other that it can and will take actions the other does not want *if and only if* the other takes prohibited actions. But the two paths to war are quite different and in practice, although not in theory, the policy prescriptions often contradict each other. Arms control stresses the dangers that arise when reassurances and promises—especially the promise not to strike—are either not made or are not believed; deterrence stresses the dangers that arise when threats are absent or dismissed. Thus, when Schelling writes on arms control, he talks of the danger of inadvertent war and the necessity for reassurances that show the adversary that the state will refrain from attacking if the adversary will. When he writes on deterrence, he argues that war can occur if the state appears weak, and that it must show that it will not back down in the face of threats.

NATURE AND INTENTIONS OF THE ADVERSARY

To go further we need to turn to the third avenue and question of whether the state wants the other side's forces to be vulnerable. Classic arms control, like classic realism, sees the actors as essentially identical; discussions of crisis stability are couched in terms of two interchangeable actors. But other theories—those of Kant, Marx, and Wilson, for example—see the causes of war as lying within particular kinds of states. Far from ignoring domestic characteristics and treating all states as identical “billiard balls,”¹⁴ these theories assert that certain states cause wars by being aggressive. This is implicitly true for much deterrence theory. The language there often posits one side that is defending the status quo and another that is challenging it. The implication is that aggressive states cause wars and the problem is how to halt aggression rather than how to cope with offense-dominant technology and the security dilemma.

To see the prime cause of wars as stemming from the aggressive tendencies of some states is not automatically to dismiss the danger of crisis instability. Even if the adversary is highly aggressive, a mutually undesired war could come about through the reciprocal fear of surprise attack. To put the point more generally, even if the degree of conflict between the two sides is quite high, there is still room for some cooperation (that is, the first postulate of arms control can still

hold). Indeed, even during World War II there were some restraints (on bombing cities at the start of the war and on not using poison gas throughout), although these may have been abetted by one side or the other miscalculating its own interests. Once nuclear weapons come on the scene, furthermore, the area of common interests expands because both sides need to avoid all-out war. Nevertheless, if one or both sides is highly aggressive, the range of applicability of the second postulate must be questioned. In many areas, good military policy will not be good arms control, and the attempt to render Soviet forces vulnerable might be an example.

The belief that the main cause of war is aggressive states is often linked to the claim that aggressiveness is correlated with, if not caused by, domestic repression. Although for years dismissed if not ridiculed by many arms controllers, this argument receives more than a little support from recent events. It is not likely to be an accident that unprecedented progress in arms control has occurred at the same time that the Soviet system has undergone unprecedented liberalization. Obstacles which were enormous when Brezhnev and his predecessors were in power have vanished with the Gorbachev revolution. This is not to say that all dangers have passed, or that nothing would have been possible without extensive changes within the Soviet Union, but it does appear that the success of arms control has been driven less by technological breakthroughs, intellectual ingenuity, and shifts in the balance of power than by internal changes which have affected the entire range of Soviet foreign policies.

INTERESTS, DOCTRINES, AND STABILITY

Those who argued that the United States should have extensive counterforce capability pointed out that not only can wars start through aggression, but also that although avoiding war is the central American interest, it is not the only American interest. The most obvious other American interest that could be threatened by invulnerable Soviet nuclear forces is Western Europe. The United States needs to deter against attacks on allies—"extended deterrence." The problem arises because of what Glenn Snyder has called the "stability-instability paradox."¹⁵ If there is great stability at the strategic nuclear level, then there is little credibility in either side's threat to launch an all-out attack in response to anything other than an

unlimited strike against it.¹⁶ The straightforward inference is that, in Colin Gray's words, "The United States cannot afford the crisis stability that precludes first use of strategic nuclear weapons."¹⁷

It seems intuitively obvious that if there is crisis stability, neither side can credibly threaten to start an all-out war in response to a limited provocation. But this misstates the situation. It would be an accurate formulation if levels of violence were hermetically sealed off from each other, if undesired escalation were impossible.¹⁸ In fact, most statesmen realize that whenever violence is set in motion, no one can be sure where it will end up. Because events can readily escape control, limited responses carry with them some probability that the final, although unintended, result will be all-out war. A state that begins a confrontation or responds to one invokes what Schelling called "the threat that leaves something to chance."¹⁹ What then brings pressure to bear on the adversary—and on the state as well—is less the immediate product of the action than the fear of where both states could end up.

The fact that the limited response would not automatically lead to all-out war means that the state can rationally carry it out under some circumstances, and that the threat to do so can be credible; the fact that the outcome could be mutual suicide means that the pressure generated is considerable. During the Cuban Missile Crisis, for example, both sides feared that the confrontation, although managed extremely carefully, could escalate to nuclear war. According to Arthur Schlesinger, Kennedy's sense of urgency toward the end of the crisis was "based on fear, not of Khrushchev's intention, but human error, of something going terribly wrong down the line."²⁰ Indeed, the incident that convinced the president that the situation was too dangerous to be permitted to continue was the shooting down of the U-2 over Cuba, which we now know actually represented an instance of these mechanisms because it was carried out by a local Soviet military officer against the wishes of Moscow.²¹

There are two implications for arms control. First, crisis stability need not leave allies dangerously exposed to threats. The fact that nuclear war could grow out of a conventional one means that even if the Soviets believed that they could win the latter, they could be deterred by the possibility of the former, whose occurrence would not depend on the vulnerability of their forces. Second, effective counter-force targeting is not necessary for deterrence. Arms controllers can

argue for the virtues of mutual invulnerability without arguing against an effective military policy; the second arms control postulate is not invalidated by the state's need to protect its allies.

IMPORTANCE OF DOCTRINE

But if the need for extended deterrence need not disturb arms control, military doctrine can. The applicability of the fundamental arms control postulate is questionable if American leaders believe that in order to be secure, the United States must be able to insure that the Soviet Union—or any other adversary—could not gain a military lead over the United States in any kind of limited warfare. It can be argued that, even if unfortunate, deterrence indeed does impose such a requirement: if the United States were not able to match Soviet military power at all levels, the Soviet Union could be tempted to start a limited war. The stability-instability paradox would hold escalation in check; advantage at lower levels of violence could be turned into meaningful victory in war or coercion in peacetime. This view of military affairs is heavily zero-sum. Soviet and American security would be incompatible because only one side could have military superiority and only that side could be secure.

At the highest levels of violence, strong counterforce doctrines similarly conflict with the possibility, if not the desirability, of crisis stability. As long as both sides believe that all-out war would result in mutual devastation, first-strike incentives are negligible and crisis stability is relatively easy to attain. This is not true, however, if decision makers believe that there are real advantages to be gained by destroying more of the adversary's strategic forces than the state is losing. Because of multiple warheads, and, even more, because of the vulnerability of command and control facilities, a first strike will almost surely be advantageous in purely counterforce terms. A state that is preoccupied with counting surviving warheads, especially those with counterforce capability, will have significant incentives to strike first. While these incentives would not likely be high enough to be a menace in times of calm, they could be sufficient to create instability in periods of heightened tension and perceived likelihood of war. Theoretically, this need not be true, even if both sides adopted counterforce targeting. In principle, weapons and command systems could be so invulnerable that attacking would use up more warheads

than it would destroy. But it appears that while the vulnerability of command and control systems can be reduced, it cannot be eliminated. In practice, then, it is probably true that the only thing worse than starting a counterforce war would be having to fight one after receiving the first blow.

To the extent that either or both sides believe that wars are only—or even are best—deterred by having a counterforce capability superior to that of the adversary, arms control is pointless or even dangerous. A status quo power with extensive commitments could seek crisis stability only if it had the ability to defend its allies on the nonnuclear level. But crisis stability itself would be hard to achieve because of the offensive advantage in a counterforce war. By contrast, if what deters is the risk of escalation and the threat that leaves something to chance, then both arms control postulates have a great deal of validity.

This perspective also reveals the limits of arms control. While both sides have an interest in eliminating extreme crisis instability, they need to see that there is some chance that events could get out of control once violence is employed because this is the main generator of caution and the primary means of exerting pressure on the other side. Given the complexity of large-scale military organizations and the unpredictability of human affairs, it is doubtful that arms control could succeed too well and produce arrangements that would drive the danger of undesired escalation close to zero. Furthermore, decision makers would probably ensure that this does not happen. That is, if crisis stability seemed to greatly reduce risks, it would permit, if not require, statesmen to take bolder actions during a crisis in order to produce the desired level of danger.²² Similarly, if decision makers believed confrontations were quite safe, they would feel freer to provoke them (that is, to challenge the adversary's important interests). If crisis management were seen as easy, there would be less pressure on statesmen to try to prevent crises from arising in the first place. (It is striking that we have gone more than a quarter of a century since the last major superpower crisis—this is longer than the main rivals stayed at peace in most of the prenuclear era.) If security is linked in part to the danger of inadvertent war, then too much stability could make the world safe for coercion and violence. Successful arms control is, then, at a certain distant point, self-limiting.

Unless and until this point is reached, however, the fundamental and secondary arms control postulates are compatible with the role of force and threats with the nuclear age. But this does not mean that they meet the greatest dangers of war. The focus on vulnerability and first-strike incentives is excessively mechanistic. States start wars for political objectives, not because they see an opportunity or fear that the other side does. Indeed, it is hard to find even a single war that was inadvertent in the sense that, immediately after it started, both sides would have preferred to return to peace on the basis of the status quo ante. Of course the question is not one of either/or. Crisis instability can interact with political conflict, arms controllers never suggested that the former in the absence of the latter would yield war. They did not worry that British forces were vulnerable to an American, or even to a French, attack; but by concentrating on the dangers of offensive advantages and assuming rather than examining the political context, they may have both exaggerated the danger of crisis instability and generated excessive hope that technical arms control could bring peace, if not cooperation. There is much validity to the old Soviet criticism of American arms control as preoccupied with the military causes of war at the expense of considering the broader relations between the two countries. If relations remain extremely bad, war can occur even if strategic weapons are not vulnerable; if relations greatly improve, vulnerabilities will not be a major source of danger.

Wars are caused predominantly by conflicts of political interests. Clashing security requirements are not the only and, perhaps, not the most important sources of such conflicts. Incompatible desires for territory and dominance, hostile nationalisms and other ideologies, and assorted calculations that fighting can be of benefit are common causes of wars that lie beyond the ameliorative reach of arms control. As I noted earlier, crisis instability is an extreme and fast-acting example of the security dilemma. When the offense is dominant, states cannot make themselves secure without menacing—or even attacking—the adversary. But arms control theorists did not build on this insight and raise the question of whether American military and foreign policy was unnecessarily decreasing Soviet security and heightening Soviet-American conflict, probably because they shared the prevailing belief that the Soviet Union was driven more by the desire to expand than by the fear that the West would attack it.

Concentrating on the danger of preemption and immediate desperation, arms control paid less attention to a preventive war which could be produced by the perception that the other side is steadily eroding the state's security.

The standard formula for crisis stability focuses on the size of the gap between the payoffs for striking first and for striking second. But this neglects the expected evaluation of a world in which war does not occur, which is irrelevant only when war is judged to be completely certain. As long as the state believes that there is a chance that war can be avoided, its decisions will be strongly influenced by how well it thinks it will do if peace is maintained. Thus, a state which is satisfied with the status quo and is optimistic about its future prospects will seek to preserve the peace and may refrain from striking even in the face of crisis instability. By contrast, a state which is highly dissatisfied and/or which believes that its position is likely to deteriorate badly if current trends continue can rationally strike even when the offense has only a slight advantage.²³ Furthermore, one side's misguided military policy can contribute to the other's sense of threat and belief that its future fate is bleak unless it fights. While the fundamental and second arms control postulates still apply, the focus on military instability is too narrow, if not misleading.

When the costs of war are enormous, it is hard to see how one can start unless one or both sides believe that war is inevitable and that striking first is preferable to striking second. The theory that underlies most American arms control thinking then has a large measure of validity. But it excludes the broad political considerations which usually play such a large role in decisions to fight. Both the danger of aggression and the possibility of long-run spirals of hostility and fear have been more potent causes of war than has crisis instability.

ACKNOWLEDGEMENTS

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ENDNOTES

¹For good discussions of the causes of war, see Geoffrey Blainey, *The Causes of War* (New York: Free Press, 1973); and Jack Levy, "The Causes of War: A Review of

the Theories and Evidence,” in Philip Tetlock, et al., eds., *Behavior, Society and Nuclear War*, vol. 1 (New York: Oxford University Press, 1989), 209–333. Bernard Brodie argued that because the danger of Soviet-American war was so slight and because the destruction of such a war could not be limited, arms control should concentrate on its third objective of saving money: Bernard Brodie, “On the Objectives of Arms Control,” *International Security* 1 (1) (Summer 1976): 17–36. There is quite a bit to be said for this view—and arms control may have contributed to the stability that Brodie noted.

²The classic statement is from Kenneth Waltz, *Man, the State, and War* (New York: Columbia University Press, 1954).

³Kenneth Waltz, *Theory of International Politics* (Reading, Mass.: Addison-Wesley, 1979).

⁴Thomas Schelling, “Reciprocal Measures for Arms Stabilization” *Dædalus* 89 (4) (Fall 1960): 892.

⁵Thomas Schelling and Morton Halperin, *Strategy and Arms Control* (New York: Twentieth Century Fund, 1961), 2.

⁶Bernard Brodie, *The Absolute Weapon* (New York: Harcourt Brace, 1946), 76.

⁷Schelling and Halperin, 141.

⁸*Ibid.*, 4.

⁹Thomas Schelling, *The Strategy of Conflict* (Cambridge: Harvard University Press, 1960), chap. 9; Schelling, *Arms and Influence* (New Haven: Yale University Press, 1966), chap. 6.

¹⁰Robert Powell argues that under most plausible assumptions, the situation is not as dangerous as one might think: see “Crisis Stability in the Nuclear Age,” *American Political Science Review* 83 (1) (March 1989): 61–76. I have argued that standard analysis neglects important psychological processes and dynamics: *The Meaning of the Nuclear Revolution* (Ithaca: Cornell University Press, 1989), chap. 5.

¹¹Schelling and Halperin, 9.

¹²See John Herz, “Idealist Internationalism and the Security Dilemma,” *World Politics* 2 (2) (January 1950): 157–80; Herbert Butterfield, *History and Human Relations* (London: Collins, 1951), 19–20; Arnold Wolfers, *Discord and Collaboration* (Baltimore: Johns Hopkins University Press, 1962), 83–86; Waltz, *Man, the State and War*, 198–223; and Robert Jervis, *Perception and Misperception in International Politics* (Princeton: Princeton University Press, 1976), 62–90.

¹³In fact, the history of neither case carefully matches the models that bear their names: see Robert Jervis, “War and Misperception,” *Journal of Interdisciplinary History* 18 (4) (Spring 1988): 685–89.

¹⁴The billiard ball analogy comes from Wolfers, 4–19.

¹⁵Glenn Snyder, “The Balance of Terror and the Balance of Power” in Paul Seabury, ed., *The Balance of Power* (San Francisco: Chandler, 1964), 184–201. Similarly, Schelling and Halperin say: “If one of the things that prevents local wars is the fear of both sides that it will spiral to total war, then agreements which make it less likely that this will happen may end up making local war more likely. On the

other hand this could be a reasonable price for greater insurance that local war will not go to total war." Schelling and Halperin, 31; see also 62–3.

¹⁶In this discussion I will put the latter possibility aside, both because it is hard to imagine the circumstances which could lead to such a Soviet attack and because the problem is analytically parallel to that of extended deterrence. I will also assume that the conventional balance in Europe would permit the Soviets to conquer the continent if nuclear weapons were not used, and that both sides realize this is the case. In fact, this is hotly disputed.

¹⁷Colin Gray, "Strategic Stability Reconsidered," *Dædalus* 109 (4) (Fall 1980): 147.

¹⁸There is an important link between crisis instability and events getting out of control, although this connection was not explicitly drawn even by those who developed the concepts. When offensive advantage is slight (i.e., when even striking first will lead to disaster) it is hard to see how an all-out nuclear war could start. Thus, Herman Kahn argued that while crisis instability could be troublesome, "I have put this possibility low on the list of possible cause of war . . . because of the belief that as long as decision makers are consciously in control of events, they are very much more likely to draw back from pressing buttons and accept any resulting risks, than to do something which would make war inevitable—particularly, if this war were to occur at a time and under circumstances not of their choosing." But as Kahn recognizes, a great deal rides on the proviso that "decision makers are consciously in control of events." Herman Kahn, "The Arms Race and Some of Its Hazards," *Dædalus* 89 (4) (Fall 1960): 760.

¹⁹Schelling, *Strategy of Conflict*, 187–203.

²⁰Arthur Schlesinger, Jr., *Robert F. Kennedy and His Times* (Boston: Houghton Mifflin, 1978), 529. For more extended discussion of these fears and why they were well grounded, see Jervis, *Implications of the Nuclear Revolution*, 82–95.

²¹Richard Bernstein, "Meeting Sheds New Light on Cuban Missile Crisis," *New York Times*, 14 October 1987.

²²For further discussion, see Jervis, *The Meaning of the Nuclear Revolution*, 96; and Barry Nalebuff, "Brinkmanship and Deterrence: The Neutrality of Escalation," *Conflict Management and Peace Science* 9 (2) (Spring 1986): 19–30.

²³Under these circumstances, statesmen may also exaggerate the chances that war will bring victory. See Richard Ned Lebow, *Between Peace and War* (Baltimore: Johns Hopkins University Press, 1981).

No arms-control plan is feasible if either side insists on world domination rather than on security. On the other hand, if both envisage a protracted future of coexistence in which no more than limited-war capabilities are used in support of limited objectives, many types of arms control may be feasible, separately or together. Only the more modest types of control may be possible in the first phases; but, if successful, they may create the requisite all-round confidence which would make possible more fundamental controls, such as those over the production of fissionable materials and over missile-delivery systems. Thus, while the need to avoid undermining the balance of terror makes impossible any single great leap into the promised land of "complete and general disarmament," the avenues for constructive statesmanship in arms control are by no means barred.

William T. R. Fox

From "Political and Diplomatic Prerequisites of
Arms Control"

Dædalus, Fall 1960: pages 1012–13.

Cooperation and Interdependence

As the arms race continues and the weapons multiply and become more swift and deadly, the possibility of a global catastrophe, either by miscalculation or design, becomes ever more real. More armaments, whether offensive or defensive, cannot solve this dilemma. Mutual deterrence underscores the need for a renewed effort to find some way, if not to eliminate these deadly weapons completely, then at least to slow down or halt their further accumulation.¹

—Secretary of Defense Robert McNamara
1963 Posture Statement

MCNAMARA COULD NOT HAVE BEEN MORE WRONG. Since he wrote those words in 1963, the United States and the Soviet Union have been engaged in an almost relentless competition in nuclear weapons; yet there has been no global catastrophe of nuclear war. This is not a paradox. Over the last thirty years, nuclear weapons have come close to solving the dilemma of self-protection that states have faced since the beginning of the state system itself. Far from creating a need to do something about it, mutual deterrence actually vitiates that need. The United States and the Soviet Union are fundamentally more secure than any great

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power has ever been. Nuclear weapons are the most important source of that security.

McNamara and many of his contemporaries made a serious error in thinking otherwise. They misunderstood the relationship between nuclear weapons, interdependence, and cooperation. The authors of the 1960 *Dædalus* issue both reflected and propagated this mistaken set of ideas when they argued that nuclear weapons made security a deeply interdependent commodity, something that the superpowers could gain only, or more effectively, through cooperation. It stood to reason that if the United States and the Soviet Union were in fact interdependent, they would have to cooperate in at least limited ways to attain their objectives. But the premise was wrong. This paper argues that nuclear weapons have *not* made the superpowers interdependent when it comes to their most vital security interests. In fact, nuclear weapons have had precisely the opposite effect. Nuclear weapons grant states the ability to assure their own security relying solely on their own resources. This is a condition of security *independence*. I explore the causes and consequences of the contrary belief that has formed the basis of arms control up till now. I also consider implications of both sets of ideas for the future of arms control.

INTERDEPENDENCE AND COOPERATION

Interdependence and cooperation are words to be defined with care, because the way we define them has crucial consequences for action. Take interdependence first. In common parlance, two states or people or firms are interdependent if they are *sensitive* to each other, if what one does affects the other. The affected party responds with an adjustment that is sometimes costly and painful; but the adjustment can indeed compensate for most of the unwanted effects. International relations theorists remind us, however, that there is another way to understand interdependence, not as sensitivity per se, but as vulnerability.² On this logic, two states are *vulnerable* to each other when the actions of each threaten the basic interests of the other in a way that neither can readily compensate for. The difference is that states cannot redress the effects of vulnerability on their own at any price. This leaves two choices. States can either suffer the pain of vulnerability on their own, or they can try to adjust their policies in

a coordinated way so that the actions of each are less damaging to the other.

In international politics we usually think of interdependence as being very important under conditions of vulnerability, and much less important when states are merely sensitive to one another. That is simply because the international system lacks a world government or any other supreme authority. This condition of anarchy gives great incentive for states to rely on their own resources to safeguard vital interests. Sensitivity is important, but when states can compensate for the consequences of sensitivity without relying on the promise of help from other states, they will mostly prefer to do so.³ This drive to pursue self-help solutions will be strongest in a security relationship between two powerful and distrustful adversaries. If at all possible the United States and the Soviet Union will choose to rely on their own resources when it comes to securing themselves against each other.

What if decision makers believe that this is impossible? If adversaries believe that they are truly interdependent, they may try to *cooperate*, which means adjusting and coordinating their behaviors so as to minimize the adverse impact of what each does on the other side. Cooperation is a way of regulating joint affairs that sometimes offers enticing benefits but it also has risks. The risks of cooperating with an adversary on security issues are the largest of all, because the state that chooses to do so places its continued existence or autonomy at least partially in the hands of another.

The point is quite simple: As long as the international system lacks a world government, adversaries will avoid security cooperation so long as they have a viable choice. That choice goes away when decision makers believe that they are bound together under conditions of high interdependence. It thus would make good sense to talk about US-Soviet arms control cooperation if the superpowers were truly interdependent in nuclear security. If the superpowers were only sensitive to each other's actions, cooperation would be much less important; each superpower would usually prefer to pay the costs of adjustment and pick its own route to security.

There is also a third possibility. If the superpowers are nearly *independent* of each other—that is, if US nuclear policies barely affect the security of the Soviet Union and vice versa—cooperation

becomes irrelevant. There is simply nothing worth cooperating about.

INTERDEPENDENCE AND ARMS CONTROL

Superpower arms control has been based on the assumption that nuclear weapons make the United States and the Soviet Union *more* interdependent in security than were other great powers in a pre-nuclear age. That assumption is fundamentally mistaken. To see why, it is important to remember that through most of history, security has been a scarce commodity for most states, even great powers. Before the nuclear revolution, security rested on states trying to defend their territory by building fortifications and by mustering armies that could defeat invaders before they crossed the border. An unassailable defense would have given perfect security, because no state would attack another if it were sure to fail, no matter how valuable the prize. Wars were fought because states were unable to field completely unassailable defenses: even the best defenses left room for uncertainty, which was resolved by fighting. Security, so far as it went, rested on a tenuous and volatile balance between offensive and defensive forces. States were interdependent, because a technological breakthrough for the offense could make the best defenses obsolete in short order. States were also interdependent because of politics: potent defenses could be made obsolete almost as quickly by an offensive alliance between two or more attacking states.

Nuclear weapons change the basis of security for the superpowers. Nuclear weapons and modern delivery systems make defense much more difficult, but they also make it less important. The superpowers protect their homelands through deterrence instead. ICBMs are not very useful for stopping invading armies or for shooting down other ICBMs, but they are very good at destroying cities. Deterrence based on assured destruction means that the United States and the Soviet Union are capable of destroying the other's homeland in retaliation for an attack on their own. Both sides' cities lie defenseless.

This "mutual hostage" relationship between adversaries is unprecedented. Intuitively, it seems that it would create a higher level of security interdependence between the superpowers. But the reality is different. Nuclear weapons actually uncouple the superpower's security needs from each other, for two reasons. The first is that nuclear

deterrence is more effective than defense, simply because it is much less likely to be challenged. In a nuclear world, the only uncertainty for a potential attacker lies in whether the target state would carry out its retaliatory threat; and when it comes to an attack against the homeland of a superpower, that uncertainty declines to a minimum. A potential attacker asks not whether he will succeed or fail to attain his objectives against a powerful defense, but whether or not he will continue to exist. The penalty for miscalculation is extermination. Security under mutual deterrence is robust.

The second and more important reason is that nuclear deterrence is something that states can do on their own, without relying on other states to help them. That is not true of defense in a nonnuclear world. To mount an effective defense, a state must constantly monitor and respond to developments in technology and politics among its adversaries and its allies. Defense leads to interdependence. To mount an effective nuclear deterrent is something each state can do on its own. The key is that a nuclear arsenal sufficient to destroy the other's cities can be built and deployed in such a way as to make the weapons invulnerable to preemptive attack. Once it is armed with its own assured destruction capability, a state can achieve near-complete independence in security. It need not worry about the reliability of its allies or the intentions of its adversary. The balance between the attacker's forces and the defender's is no longer tenuous. As long as the United States maintains an invulnerable retaliatory capability for assured destruction, the Soviets can build as many missiles as they wish without threatening Washington's vital security interests, and vice versa. This is a condition of low interdependence.

MUST WE COOPERATE?

Nuclear weapons are the ultimate self-help security tool. Nuclear states may be sensitive to each other but they are not vulnerable. Each needs to insure the continuing survivability of its own deterrent forces, but that is something a state can do on its own at an acceptable cost. The security of each superpower then depends only upon the other choosing not to strike, but that is an overdetermined choice. The opposite choice insures suicide. Security under mutual deterrence does not demand any kind of cooperation; it is simply a result of self-interest. Far from making states interdependent, nuclear

weapons offer the promise of independence and self-reliance in security.

Both Washington and Moscow acted as if they understood this through the end of the 1950s. Neither state pursued arms control cooperation in a serious way; instead, the United States sought continued superiority and the Soviet Union tried to catch up. Each side struggled to build an arsenal that would certainly devastate the other side under any circumstances. When challenged, each state responded by relying on its own resources. An example: when the 1957 Gaither Report alarmed US leaders by calling attention to SAC's susceptibility to preemptive attack, Eisenhower and Dulles did not put much stock in cooperation as a way of solving the problem.⁴ The United States could take care of itself, and it did. In the short term we instituted a limited airborne alert of our bomber force; in the longer term we built quick-response, solid-fueled ICBMs, and deployed them in hardened silos and submarines. Self-help solved the problem; cooperation was irrelevant.

In the early 1960s this understanding changed, at least in the United States. Change was set off by recognition of what seemed a discomfiting fact: the Soviets were destined to have their own assured destruction capability against the United States fairly soon, and there was nothing we could do to prevent it. Even if the United States remained ahead in the numbers, "functional parity," the condition of mutual assured destruction, was going to be a fact of life.

The 1960 *Dædalus* issue was basically a discussion of the consequences of that fact, but it made a crucial mistake. The fundamental error, shared by almost all the arms controllers of the first generation, was to equate functional parity with increased interdependence. Reflecting contemporary beliefs, Wiesner's foreword proclaimed that "if we drift along as we are now doing, another major war will *certainly* occur. We can *only avoid that disaster* if the nations of the world regard war itself as a common enemy and make a truly consummate effort to *work together* in resolving the important issues that are involved."⁵ This was not just rhetoric. Wiesner's words reflect a particular set of ideas about the relationship between nuclear weapons, interdependence, and the need for cooperation. Those ideas were intuitively appealing but they were wrong. Far from bringing interdependence, functional parity made the superpowers more *independent* when it came to nuclear security.

The proof lies in thirty years of history. Despite considerable effort on both sides, there has been little cooperation in superpower arms control that was both substantive and sustained. Instead, self-help has prevailed. Both the United States and the Soviet Union cycled back and forth between expansion and contraction of nuclear arsenals, between strategic doctrines that emphasized countervalue, counterforce, countercontrol, and so on. They did so dissynchronously and with little coordination. Concurrently, they developed and deployed new generations of weapons and delivery systems with technologies undreamed of in 1960. Politically, the superpowers went from Cold War to détente and back again, several times. The only constant is that there has been no nuclear war.

Functional parity continues, but it was always an illusion to think that this condition made the United States and the Soviet Union more interdependent. Functional parity never made cooperation an imperative. Quite the opposite: it has mainly meant more self-help for both superpowers. And it has been successful in maintaining peace.

THE CONSEQUENCES OF "FEIGNED INTERDEPENDENCE"

So what? Why be regretful of attempts to cooperate that were not really necessary? To begin to answer this question, consider the intellectual foundations of arms control on the SALT model and some of the effects of the resulting negotiations on the broader US-Soviet relationship. Because SALT assumed a high level of interdependence between the superpowers' strategic doctrines and force postures, cooperation would depend upon forcing an unnatural convergence between American and Soviet "strategic cultures." The foundation of this effort was a presumed convergence of beliefs about the relationship between nuclear offense and defense: both sides would recognize the primacy of deterrence based on assured destruction and forego attempts to overturn it.

ABM (antiballistic missile) was the most visible and immediate challenge to this foundation. Because ABM technology of the 1970s was very expensive and not very effective, both sides were ready to sacrifice their option to deploy ABM systems in the short run. The ABM treaty was a useful response that reduced the costs to both sides, that would have come with sensitivity. If either had deployed defenses, the other would have been compelled to respond with

extensive countermeasures to ensure that its warheads could penetrate. A mixed offense-defense arms race would have been an expensive game to play. But the outcome was never in doubt. Had there been no treaty, each superpower would have done what was necessary, at greater cost but with its own resources, to insure the continued viability of the assured destruction threat.⁶

The ABM agreement did not represent any deeper convergence between strategic cultures or shared beliefs about the best means to maintain deterrence. That is why SALT failed to slow the offensive arms race to any significant extent. There was another challenge to the foundation of SALT that the 1972 accords did not address even in the short term: the threat of counterforce weapons. At the same time that Nixon and Brezhnev were affixing their signatures to the SALT I agreements in Moscow, the US Air Force was deploying MIRV (multiple independently targetable reentry vehicles) warheads on its Minuteman missiles in the American Midwest. A year and some months later, the USSR placed the first of a new generation of heavy ballistic missiles, the SS-18, into silos in Soviet Asia. All of these weapons were optimized for counterforce, for destroying some part of the strategic arsenal of the other side in a preemptive strike. SALT I was hardly cooperation to codify deterrence through mutual restraint.

Leaders on both sides knew of the evolving threats to deterrence long before 1972. They understood that ABMs and counterforce missiles could threaten the stability of functional parity, and they accepted the fact that each state would have to respond. But this was no longer 1957, and a new set of ideas had come to guide our thought about nuclear weapons. This time, Washington's answer rested on the new, illusory logic of interdependence: it tried to engage the Soviet Union in a cooperative effort to forego weapons systems that would challenge deterrence. Arms control was a sensible first response to feigned interdependence. When arms control failed to exert control in response to Moscow's expanding counterforce arsenal, it gradually gave way to "force matching," the other side of the coin of interdependence. By the mid-1970s, it had become an important goal of American strategic policy to match Soviet weaponry in number and type.⁷ This logic led us to build strategically absurd weapons like the 10-warhead MX missile and place them, still vulnerable to a Soviet first strike, in silos.

MX might have made sense as a bargaining chip or even as a weapon if deterrence were an interdependent commodity. In reality, it made sense as neither. The MX cost us substantial sums of money. It failed utterly to redress the feared “window of vulnerability” for American ICBMs. Whether that window was a chimera or not barely matters. What does matter is that feigned interdependence diverted the United States from taking the logical, independent response to a perceived challenge.

The simple, self-help solution to a counterforce threat is not to match hard-target kill capabilities or to try to bargain them away. It is to deny any targets for an attackers’ missiles to aim at. This is something states can do on their own. To their credit, the Soviets took this path—they put more of their missiles at sea and moved to deploy rail- and truck-mobile ICBMs in the mid-1980s. The United States did not.⁸ In 1991, we are still struggling for cooperative means to redress a threat that we could have made obsolete through self-reliance long ago. Instead, the putative window of vulnerability and Moscow’s resistance to solving the “problem” for us has stuck as a weight and a contaminant on superpower political relations for at least fifteen years.

THE LEGACY OF SALT

Apart from some success in slowing down a brewing race in ABM, SALT failed miserably as an arms control program in the military sense. It gave impetus to an arms race in areas where none was really necessary, and it impeded at least the United States from doing what it should have done on its own.

Where SALT succeeded beyond anyone’s wildest expectations was in wreaking havoc with the political component of US-Soviet relations. SALT ransomed politics to unrealistic expectations about the convergence of strategic and military cultures. When the Soviet Union demurred and continued on its own preferred independent path to security, the impact of failed negotiations, the raising and subsequent disappointing of expectations, and the accusations of bad faith began to take a heavy toll on US-Soviet relations in areas beyond arms control. Confusing and entangling illusions of nuclear interdependence with other issues where the superpowers were actually more interdependent, American leaders made the mistake of

thinking that the regulation of Soviet strategic weapons under SALT would drive Moscow to moderate its ambitions elsewhere, particularly in the Third World. American conservatives argued the other side of the coin: the fact that the Soviets didn't moderate their political goals was a direct consequence of the mistake that Nixon and his successors had made in accepting unequal limitations on strategic weapons systems under SALT. By the end of the 1970s, SALT had met its demise and had been buried, along with détente, in the silos of Uzbekistan.

In retrospect, the failure of SALT should have been seen as the proof of the pudding. As political relations deteriorated, the Soviets continued to deploy heavy ICBMs and a new arsenal of SS-20 IRBMs aimed at Europe. The United States, for its part, embarked on a massive strategic modernization program which took a return to "superiority" as its goal, at least in rhetoric. For several years after 1983 President Reagan confronted the Soviets with a serious challenge to the ABM deal, in his technologically quixotic quest for SDI. Arms control cooperation was once again passé; each superpower opted for its own preferred route to security.

If security were in fact an interdependent commodity; if it rested on mutual confidence of two states' abhorrence of violence; or if the balance of terror were in fact quite so delicate, the early 1980s would have been a very dangerous time. But despite the apocalyptic predictions of peace activists and the ticking of the clock on the cover of the *Bulletin of the Atomic Scientists*, the superpowers were far more secure in 1983 than they were in 1953. It stretches the most florid imagination to conjure up a scenario that could have led to nuclear war in the 1980s, even during the deepest darkest days of the new Cold War. SALT failed miserably, and it hardly mattered for deterrence. This should have silenced the pundits who claimed that nuclear weapons made the superpowers interdependent and that cooperation was some sort of "imperative." Instead, the sequel of SALT's collapse was powerful evidence of just how independent the superpowers were under nuclear deterrence. Far from being an imperative, cooperation was not even a favored or a more efficient route to military security for the United States and the Soviet Union.

What *did* SALT reveal about cooperation and interdependence? The failure of arms control showed that the "delicate balance of terror" was, in fact, militarily speaking, quite sturdy. The nuclear

balance was, only delicate insofar as it became linked, within the minds of decision makers, to the politics of détente. On balance and largely for those reasons, we should have learned that it just does not make sense to try to cooperate in areas of low interdependence. Getting to cooperation turned out to be difficult and expensive; most of the successes proved tenuous; and the benefits, while they lasted, were small. In fact, most of the things that arms control could do, the superpowers could have actually done quite well on their own. SALT, with its limited goals and political pitfalls, could not sustain the interest and commitment of leaders, governments, and in the US case the public. Security cooperation under a condition of low interdependence was not worth the effort.

WHY WE WERE FOOLED

Why did anyone ever think otherwise? With 20/20 hindsight, I can see three sources of confusion about interdependence. The first was simply intuition and emotion. If a Soviet leader could kill US citizens at the touch of a button, one felt less secure as an American than one might have at the end of World War II. From this perspective, nuclear weapons and the development of the ICBM finished the job of shattering American insularity that Pearl Harbor had begun. It was natural to feel that greater destructive power and the de facto exchange of societies as hostages made superpower security interdependent.

A second source of confusion lay in the new-found power of mathematical tools to study the condition and the consequences of interdependence. Thomas Schelling's 1960 book *The Strategy of Conflict* was a monumental achievement in bringing advancements in game theory, most importantly in the theory of mixed-motive games, to bear on problems of nuclear policy and arms control. The growing power of the methodology, its parsimony and mathematical elegance, would have made it almost irresistible to strategic thinkers and politicians struggling to comprehend the implications of nuclear weapons and the coming age of nuclear parity for a dangerous world. The assumption of interdependence, on which the game models rested, slipped in easily, almost unquestioned.

The third source of confusion was slightly more insidious. In the face of great fear, it was easy for many of us to fall back on old

political and cultural myths about the positive effects of interdependence on peace. A naive strand of American liberalism has always held hostility to be an unfortunate result of misunderstanding and mistrust, and not principally a reflection of fundamental conflicts of interest. In this case, it produced the notion that the more we got to know our enemies and the tighter our destinies were bound up together, the greater the likelihood for peace. The resultant hope was that cooperation could be a *means* to, rather than a response to interdependence. The underlying idea was that cooperation could make the superpowers more interdependent, and that increased interdependence would be a cause of peace.

Each of these confusions was reinforced during the “golden era” of arms control by a high level of uncertainty about critical issues in politics and technology. In 1960, basic technological questions relating to the future of the offense-defense balance, and the stability of deterrence had not yet been fully resolved.⁹ There must have also been great uncertainty about *current* capabilities: it was only weeks before the historic *Dædalus* issue went to press that the United States deployed its first photo-reconnaissance satellite and began to discover the true nature of the “missile gap.” Finally, we know that there was great uncertainty in Washington about the Soviet leadership’s general intentions and the nature of Moscow’s commitment to overturning the world order by violent means.

Some thirty years later, these uncertainties and confusions should be gone. Decades of living under mutual assured destruction should have put to rest anachronistic beliefs that security could only be had through defense. The most important technological uncertainties have also been resolved. Counterforce is possible; perfect defense is not. By the end of the 1990s most strategic nuclear delivery systems will have pinpoint accuracy, but there will be no shield in space or anywhere else to prevent them from reaching their targets. The most critical uncertainties about Soviet intentions are equally settled. Soviet leaders may not share visions of a future world entirely consistent with those held in Washington, but we can confidently assume that Gorbachev and whoever his successors may be are not and will not be bent on achieving a Leninist ideological and political hegemony. Our experience with arms control should have taught us a lesson about the misuse of powerful tools and methodologies where they are not needed. Finally, it should be clear that the attempt to

cooperate under SALT did not make the superpowers more interdependent and did not substantially effect the prospects for peace. That idea put the cart before the horse. Cooperation is a *response* to interdependence, as is conflict. Powerful states do not willingly create interdependence where none exists. An attempt to reverse the arrows, to foster interdependence by forcing cooperation between two states that could take care of their security needs on their own, was destined to fail.

WHAT HAVE WE LEARNED?

Arms control on the SALT model has taught us much about the disadvantages of feigned interdependence. The major disadvantage was the ransoming of politics to unrealistic aspirations for convergence between the superpowers' strategic cultures, a convergence that proved unnecessary to maintain the peace. Feigned interdependence also demanded too much of trust. When states are relatively independent, "trust" need only amount to a general understanding of how the other side is likely to behave in the future. Under an illusion of interdependence, arms control for the United States became linked to much higher standards of trust, that went to deeper interpretations of the Soviets' fundamental military and political aspirations in the world. This kind of trust was difficult to establish and impossible to maintain; the assumptions on which it was always based were a continuous source of political contention between the Right and the Left in the United States. We paid a high political cost for the deterioration of a trust that we never really needed in the first place.

Feigned interdependence also retarded each side's learning about the relationship between nuclear weapons and power in international politics. The United States and the Soviet Union had to learn a difficult lesson about the limited military and political utility of nuclear weapons: that the most destructive force in history was *not* a source of unprecedented power between states, because it could not readily be used for coercion. While it is not surprising that it took time and experience to learn this, it is surprising that the superpowers did not learn at all from each other's experiences on this score. The Americans were usually out ahead: we were the first to confront the near impotence of nuclear weapons for solving political problems in the postwar world. The Soviets did not learn from our experience,

but had to find out through their own attempts at “nuclear diplomacy” and missile rattling that these weapons were not very good for much else but deterrence of attacks on the homeland.

Feigned interdependence explains some of this lag. We suspected that the “successes” and failures of our attempts to turn nuclear weapons into a resource of influence were a function of interdependence—that what the other side did actually mattered. We thought we could exploit Soviet failures, just as we thought that Soviet successes were related to bad policies on our part. The Soviets seem to have made the same mistakes in reverse. Together, we obscured the real lessons of nuclear weapons. Had we not been misled by ideas about interdependence, both sides might have recognized the limits of what nuclear weapons can do much sooner than they did.

THE ADVANTAGES OF INDEPENDENCE

Where do we go from here? To go back to the SALT approach and perpetuate the myth of interdependence will become even more difficult and troublesome in the 1990s than it was in the 1970s. It is banal but important to note that new technologies will make it harder to “equate the impact of specific restrictions or other terms” of arms control agreements on the contracting parties.¹⁰ There has also been a substantial evolution in state-society relations, both in the East and in the West, that will make it increasingly difficult for governments to “impose” unnatural security arrangements on societies that don’t want them. The issue of modernizing short-range nuclear missiles in West Germany, for example, was moot even before the recent dramatic events in Europe. In 1960, William T. R. Fox wrote that security cooperation should “inflict the least possible cost on the domestic institutions of the other indispensable states.”¹¹ SALT did not heed his warning.

Imagine an alternative world, where the search for security is governed by a different set of ideas. Nuclear weapons make security independence attainable. For the first time in history, states have the freedom to do what they want to make themselves feel secure. Diversity is a natural and (I believe) desirable condition of societies and states; nuclear deterrence frees us to be nearly as diverse as we want, without allowing that freedom to threaten our survival. The United States and the Soviet Union have had, and will continue to

have, different political and military cultures; in a world without nuclear weapons, that might have posed a threat to peace. It need not any longer, and we should not act as if it did. The ability to provide for one's own security in one's own way, and for others to do the same, is something to be welcomed, not feared.

The same holds true for other states besides the current nuclear powers. Why should the advantages of security independence be denied them? It will become harder to do so in the future, for technological and political reasons.

The technological trends are most clear. Relatively few states have yet been able to develop and deploy nuclear arsenals sufficiently potent and survivable to grant them security independence. That is mostly because delivery systems have so far been heavily dependent on large-scale industrial capabilities. Today's ICBMs are large, fragile, and expensive objects made up of steel and chemicals. Only the richest and most industrially advanced countries have succeeded in building them to the requisite standards. But those constraints are fading as "postindustrial" resources and information-processing technologies become more important sources of power. Even without any further conceptual breakthroughs, the balance must shift in favor of these new technologies. The prices of steel and petroleum are stable, while the cost of computational memory drops about thirty percent each year. Computers do not deliver nuclear warheads. They can, however, be used to design and operate new weapons and delivery systems that will be more efficient, less expensive, and more survivable at once. Heavy industrial capabilities and natural resources can be confined within the geographic boundaries of states, but knowledge cannot. Only the United States and the Soviet Union could build SS-18 and MX. But the weapons of the future are going to be available to more and more states, because those states will have open access to the information technology on which the new weapons systems will depend.

Political trends reinforce the drive for independence. Most states that rely on conventional weapons for defense remain insecure, as they have been throughout history. Most will want to do what they can to change that, particularly as we move toward an international system where power is distributed more equally among a large number of states. The desire for security independence is not new, but in the multipolar Europe of the eighteenth and nineteenth centuries,

self-help was impossible. Nuclear weapons make it both possible and desirable. De Gaulle was the first European leader to articulate this vision, but he was slightly ahead of his political time. The times have caught up. As the United States and the Soviet Union lose the status of superpower relative to others, insecure states will tend to emulate the French example.

The current nuclear “haves” may oppose this trend of proliferation to the “have-nots” but they will fail in the long run. Technological possibilities and political incentives point in the same direction. The future international system will be one in which many states have some form of nuclear deterrent, sufficient to achieve security independence when it comes to protecting their homelands.

Will this multipolar nuclear world be peaceful? That depends to a large degree on the ideas that leaders of the new nuclear states hold about the relationship among nuclear security, interdependence, and cooperation. The new nuclear states can take from our history the lessons that US and Soviet leaders learned during the crises of the 1950s, that nuclear weapons are not useful except for deterrence of attack on the homeland. They can avoid the mistake of thinking that nuclear weapons are a source of prestige or of influence in international politics. They can recognize that security depends less on geography, less on precise symmetry of potential enemies’ forces, and less on alliances. There will continue to be conflicts of interest, but the most vital interests of states will not be challenged. Miscalculation of resolve, free-riding on the defense commitments of others, uncertainty about intentions and abilities, wishful thinking, and most important, imbalances of power: all the things that were causes of war in a conventional multipolar world will be much less so in the new world of nuclear deterrence. Deterrence among the many, as de Gaulle understood, will be at least as robust as deterrence among the few.

There are many reasons to believe that the lessons of security independence, which were so hard for the United States and the Soviet Union to learn, will come more easily to the nuclear states of the future. Four-plus decades of Cold War history are a powerful piece of evidence. Even more convincing is the process of peaceful change that took place in Europe in 1989. Nuclear deterrence set the stage: it was the independence of the superpowers’ security needs that permitted Europe to evolve to its status at the beginning of 1989 without tumbling into World War III. The recognition of what that

meant in Moscow was the essential prerequisite for Gorbachev's decision to give up the Soviet empire and "security zone" in Eastern Europe, including East Germany, without a struggle. Independence also means that change in Europe, extending to the dissolution of two alliance systems and the reunification of Germany, can continue without threatening the security of the two states that hold the ultimate veto. Similar transformations might have begun in a world without nuclear deterrence, but it is hard to see how they would have come to fruition peacefully.¹²

US and Soviet leaders still worry about tumult in Europe; they fear a rapid dissolution of NATO and the Warsaw Pact; they dread the resurgence of old nationalist and religious disputes. But neither superpower will use force to stem the metamorphosis of the international system that is taking place in Europe, because it poses no threat to their vital security interests that would justify it. It is hard to imagine that Washington and Moscow could have sustained the kind of cooperation that it would have taken to manage this transition peaceably in a nonnuclear world. In a nuclear world, very little cooperation is necessary.

Is there anything left for the United States and the Soviet Union, and the new powerful states that will join them in rank as great powers, to cooperate about? It is important to remember that cooperation in a world without central authority will always be difficult. Formal economic models tell us that, all other things being equal, cooperation becomes harder as the number of states that must cooperate rises. But all other things are not equal. Security independence cuts powerfully in the opposite direction. Self-help security does not replace central authority, and it does not make cooperation in other areas a foregone conclusion. It does make it easier, because states' most vital security interests will be guaranteed.

With this recognition, the dilemma of relative gains, the fear that other states will gain more from a cooperative solution to a shared problem, declines in significance because the cooperating states understand that they no longer threaten each other's autonomy.¹³ And by eschewing attempts to cooperate where it is not at all necessary, we free up energy, resources, and political capital for cooperation where it can make a difference. Regional conflicts in the Third World are a good example. Powerful states can cooperate, if they so choose, to cause peace in these regions, even if peace means

forcibly imposing solutions on the local actors. There are other big problems on the world agenda, ranging from ozone depletion to the impact of AIDS, that represent issues of real interdependence. No state can prevent global warming on its own. As always, cooperation matters in areas of high interdependence.

There may, overall, be less cooperation in this world than some would hope, and certainly less cooperation than is possible in the abstract. Many deals that would be in everyone's interests will not be made. Security independence does not mean the end of conflicting interests, but it can mean the end of major war. The aggregate outcome for world politics will be a nonoptimal equilibrium by pure economic standards, but it will also be a peaceful one.

ENDNOTES

¹U.S. Congress. House. Committee on Armed Services. 1963 *Hearings on the Military Posture*, 88th Cong., 1st Sess., 307.

²Robert O. Keohane and Joseph S. Nye, *Power and Interdependence: World Politics in Transition* (Boston: Little, Brown, 1977), 11–19; Kenneth Waltz, *Theory of International Politics* (Boston: Addison-Wesley, 1979), 104–7, 130–46.

³Of course, the categories are not so starkly defined in the real world as I portray them here. Because there are always costs to redressing the consequences of sensitivity, how much states are willing and able to pay is an important variable that we need to understand in order to define the line beyond which vulnerability begins. History shows us that the superpowers have, in fact, been willing and able to pay quite a lot when it comes to security.

⁴The “Surprise Attack Conference” of late 1958, an abortive effort to explore cooperative solutions, was dropped after six weeks of negotiations during which NATO and Warsaw Pact experts failed even to agree on an agenda.

⁵Jerome B. Wiesner, Foreword to the Issue “Arms Control,” *Dædalus* 89 (4) (Fall 1960): 679. My emphasis.

⁶The Soviets, of course, chose to maintain an ABM defense around Moscow, consistent with the terms of the 1972 Treaty. American strategists and war planners have never doubted the ability of modern ballistic missiles equipped with MIRVs and penetration devices to overwhelm this defense.

⁷This principle began to be formalized in Washington right after SALT I. Senator Henry Jackson was the first to champion the Pentagon's argument that any future arms control agreement should establish “equal aggregates,” by which was meant equality in each category of strategic weapons.

⁸US plans for ICBM survivability—most important being mobile-basing schemes for MX and the Midgetman program—were never brought to fruition. They remain

today in a state of suspended animation, with funds barely sufficient to insure continued development.

⁹It is important to remember that both sides were working with solid-fuel propellants and undersea basing of ballistic missiles at this time but that neither technology had yet fully proven itself. The question of whether it would be possible to build effective antiballistic missile systems was equally unresolved.

¹⁰Robert R. Bowie, "Basic Requirements of Arms Control," *Dædalus* 89 (4) (Fall 1960): 713.

¹¹William T. R. Fox, "Political and Diplomatic Prerequisites of Arms Control," *Dædalus* 89 (4) (Fall 1960): 1009.

¹²It is ironic and instructive to look back at the nuclear war gaming scenarios used by academics and strategists in crisis simulation exercises during the early 1980s. Many of these simulations took as their imagined starting point a social revolution that would overthrow the communist government in East Germany, leading to a withdrawal of that state from the Warsaw Pact and demands for German reunification.

¹³This is not to say that states will not continue to argue over the distribution of benefits in other areas. But these disputes can only seem bitter because they come on top of so much peace. One has to have forgotten about World War II and the prior centuries of great power war in Europe to describe frictions like the current trade disputes between Washington and Tokyo as signs of a "bitter conflict."

Any sane strategist views nuclear warfare as a last resort, if it is a resort at all. As long as there seem to be possibilities for influencing the course of enemy action, nuclear warfare will not seem attractive. Note, for example, the debate in the United States a decade ago about preventive war. The case *for* preventive war was that the military balance of power would turn increasingly against us, and it has. The case *against* rested upon the belief that Stalinist oppression instead of getting worse and worse until an intolerable 1984 would give way either to revolution, or, as has begun to happen, the creation of a new bourgeoisie and the decay of the spirit of the revolution. Prospects of change from within made war an unattractive alternative. Only the view of Russia as blackness becoming blacker made war seem reasonable at all.

Ithiel de Sola Pool

From "Public Opinion and the Control of Armaments"

Dædalus, Fall 1960: page 997.

The Past and Future of Arms Control

WHATEVER OTHER FUNCTIONS IT MIGHT HAVE, the primary purpose of arms control is to help prevent war. Indeed, it is often taken for granted that arms control is virtually equivalent to peace. The “arms race” is commonly believed to be a major cause of international tension; it follows that the “control of the arms race” is to be sought as a kind of end in itself. Similarly, there is a common fear that a great war can come about because the political leadership “loses control” of a situation, overwhelmed by forces arising from within the military sphere. If this risk is real, it makes sense to try to restructure the military system so that those forces are less dangerous in a crisis. Whether this is done unilaterally or mainly through negotiated arms control is really a secondary issue. The more basic problem relates to the fundamental assumption about what makes for war: Are military factors really so important? How dangerous is the arms race? How much should we worry about “inadvertent nuclear war”?

The point of departure for any real analysis of the question of arms control must therefore be an examination of basic assumptions about the role that military factors play in bringing about a war. What is at issue here is not the general question of the role that military power as such plays in international politics. It may be admitted that relative power, as measured by some rough standard, will always be of fundamental political importance. The real question is the degree to which the internal workings of the military system are really worth worrying about.

To analyze this issue, the “military” approach to war causation needs to be weighed against the main alternative theory, the ap-

proach that proceeds from the assumption that war is preeminently a *political* phenomenon—that armed conflict, if it does come about, is the result of a process that is essentially political in nature. From this point of view, it makes little sense to focus one's attention on the workings of the military system. What goes on in the military sphere may be a reflection of a more basic political conflict, but it cannot in itself be an important cause of war. To try to restructure or regulate the military system, this argument runs, is to deal with symptoms and not with causes.

If war is the outcome of a political process, the goal of policy should be to influence the way that process runs its course—especially to influence a rival's behavior in such a way as to make a political accommodation possible. This influence is exerted in principle through the manipulation of the incentive structure within which an adversary operates: peaceful, conciliatory behavior is rewarded and hostile behavior is punished. Given what states care most about, the strongest pressures in both directions are military in nature. If states understand that hostile behavior will provoke a military buildup on the part of their adversary, whereas conciliatory behavior will be rewarded with a relaxation of the military pressures directed against them, they will all have a great interest in avoiding conflict and in improving relations with each other. This, then, is a world in which the possibility of military competition—not as a self-propelled phenomenon, but as an instrument of and outlet for political competition—is not dysfunctional, but rather has an important, and indeed stabilizing, political role to play.

Is there anything that can be said in general about which basic approach to war causation should prevail—or, more precisely, about how the balance should be struck? First, with regard to the common assumption that arms races generate conflict, and that arms control is, therefore, almost by definition a force for peace, one is struck by the degree to which such ideas are simply accepted as articles of faith.¹ Thus, it is often taken for granted that the Anglo-German naval race was a major cause of the First World War. This, in fact, is probably the most important historical example cited in support of the theory that arms races help bring on war. But historical research has made it increasingly clear that the naval race was not an independent cause of conflict, and that the real dispute was political in nature. The basic issue was quite simple: Would Germany replace

Britain as the world's premier imperial power? Germany sought naval predominance not as an end in itself, but as a means to that end; the naval competition was simply the arena in which this political conflict was worked out.²

Second, with respect to the history of the nuclear age, there are many observers who like to point to various "lost opportunities" for arms control. It is often simply assumed that the world would have been a safer place if these opportunities had been seized—if some agreement for banning nuclear weapons had been reached in 1945 or 1946, or if thermonuclear weapons had never been tested or developed. But such claims cannot be accepted uncritically. The thermonuclear revolution, for example, certainly marked a watershed in the history of military technology, representing in some ways more of a break with the past than did the nuclear revolution itself. A ban on the hydrogen bomb, however, even if it could have survived the sort of political conflict that might have led to war, might have succeeded only in freezing the world in an era of fightable atomic wars, and it is by no means obvious that this would have been a good thing. Even a ban on nuclear weapons would probably not have ushered in a safer world. As Bernard Brodie pointed out in 1946, atomic bombs were more likely to be used in a war where "an international system for the suppression of bomb production" was in place at the start of the conflict, than in a war where both sides had significant stockpiles from the outset. The reasons were that the control system could not survive the coming of a major war, that both sides would then race for the weapon, and that "the side which got it first in quantity would be under enormous temptation to use it before the opponent had it."³ The forty years that have passed since these words were written have done nothing to weaken the force of the argument and, looking back, probably the safest thing was to allow the nuclear revolution to run its course the way it did.

How then can the arms race issue be brought into focus? The claim is that a military rivalry can be an independent source of tension; but to the extent that it is independent, and not just a reflection of underlying political conflict, what kind of effect can it have on political behavior? It is certainly possible in theory that each side may have purely defensive goals and may be reacting in its military policy solely to what its rival is doing with its armed forces; if these military moves are misinterpreted, and one side or the other reads its

opponent's military moves as evidence of aggressive intent and reacts by becoming more hostile or belligerent, then one could argue that the purely military competition was a source of tension. Such a dynamic is certainly theoretically possible; it is just hard to find any example from modern history that even remotely approximates this model. And even as a theory, it should be noted that the argument depends in a crucial way on misperception: If each side understood that the arms competition was devoid of political meaning and was just proceeding according to its own internal dynamic of action and response, there might be a certain general irritation about the waste of resources, but would a competition of this sort actually generate the kind of tension that could in itself be a powerful cause of war? If misperception is the crucial variable, then it, and not the arms race itself, should be identified as the source of tension—especially since the opposite kind of misperception, one which refuses to admit that a real threat is genuine, may also be a source of instability, as the case of the 1930s makes abundantly clear.

In other words, those who say that the nuclear arms race is “a serious threat in its own right” point above all to “the compulsions, the suspicions, the anxieties such a competition engenders.”⁴ But the assumption is that these are *unwarranted* suspicions, that the anxieties are *artificially* generated—that these tensions go far beyond what genuine political conflict can account for. Military policy may indeed have little to do with international political life: an arms buildup might essentially be the product of the play of bureaucratic interest. This *may* be true, but if it is true, and especially if it is *obviously* true, then what goes on in the military sphere could be discounted as resulting, for example, simply from bureaucratic rivalries within an adversary's national security establishment. It might in that case be viewed as largely devoid of political meaning; suspicions need not be generated. But if the interpretation of the buildup is ambiguous, why is there any reason to assume a priori that the government will in all likelihood err on the side of hawkishness—that it will be overly suspicious, that it will read too much into these military measures—while its dovish critics will be much closer to the mark? The theory that arms races lead to war was thus never really satisfactory, either conceptually or in the light of historical experience.

The real breakthrough in thinking about arms control came only when this theory was put aside and the structure of military forces

emerged as the central problem. Now the goal was no longer force reduction as an end in itself, but rather “strategic stability,” defined as a situation where neither side had any incentive to go first in a crisis. This implied that America’s own forces had to be made secure, a condition that might be achieved only through increased military spending, higher force levels, and the introduction of new weapons systems—that is, through measures that from the traditional perspective would have been termed an “escalation of the arms race.” But it also implied—and this was where the argument really broke new ground—that Soviet forces should also be secure against American attack.

The stability theory emerged quite suddenly at the end of the Eisenhower period, or more precisely in 1959 and 1960. Thomas Schelling’s article in the Fall 1960 *Dædalus* issue was a particularly elegant exposition of the new thinking. To be sure, the idea had been expressed on occasion before. Bernard Brodie, for example, had argued along these lines as early as 1954, introducing a metaphor which was later to become quite common in the “stability” literature:

If, in the blunting-missing [counterforce] game, one side can make a surprise attack upon the other that destroys the latter’s capability to make meaningful retaliation, then it makes sense to be trigger-happy with one’s strategic air power. How could one afford under those circumstances to withhold one’s SAC from its critical blunting mission while waiting to test other pressures and strategies? This would be the situation of a gunfighter duel, Western frontier style. The one who leads on the draw and aims accurately achieves a good clean win. The other is dead. But if, on the other hand, the situation is such that neither side can hope to eliminate the retaliatory power of the other, the restraint that was suicidal in one situation becomes prudence, and it is trigger-happiness that is suicidal.⁵

In 1959 and 1960 the idea was taking hold quite rapidly, largely eclipsing the more traditional approach to arms control in the process.

The stability theory proceeded from the assumption that a great war could come even though nobody really wanted it. A “modest temptation on each side to sneak in a first blow,” Schelling wrote in a famous passage, might lead to war, even if there was “no ‘fundamental’ basis for an attack by either side”—that is, no real

political basis for the war.⁶ The incentive to preempt combined with the fear of being preempted might precipitate a war that everyone might very much have preferred to avoid. A central goal of policy should therefore be to prevent such a situation from arising in the first place—that is, to minimize first-strike advantages all around.

But how realistic is this basic assumption about how a great war might come? Speaking very generally, and again in the light of historical experience, how great a risk is there that a war, not warranted by any basic political conflict, can be generated by the workings of the military system? The idea that this risk is to be taken quite seriously because of the general nature of the international system is still very common. Robert Jervis, for example, recently concluded an article in *International Security* by warning that “wars have broken out in the past between countries whose primary goal was to preserve the status quo. States’ conceptions of what is necessary for their security often clash with one another. Because one state may be able to increase its security only by making others less secure, the premise that both sides are basically satisfied with the status quo does not lead to the conclusion that the relations between them will be peaceful and stable.”⁷

Brodie, on the other hand, in one of his last essays, ridiculed “the notion that two great nations which are conspicuously determined not to get into a war with each other, nuclear or otherwise, may somehow suddenly and unwittingly stumble into such a war, either through sheer accident or through some childish concern with losing face. . . . I know of no war in modern times,” he wrote, “that one could truly call accidental in the sense that it came despite both sides having a strong aversion to it, through not seeing where their diplomatic moves were taking them.” The “assumption that accidental war is an historical commonplace” had, he said, been “carried to ludicrous extremes in the further absurd belief that nuclear weapons have made it not less likely but rather more so.”⁸

My own sympathies are with Brodie’s side of the argument. As a general rule, great wars do not break out because of forces generated from within the military sphere. The common idea that the First World War was in some sense caused by the mobilization system and the war plans in place in 1914 is simply a myth and cannot withstand a systematic study of the evidence.⁹ And yet the coming of the First World War is by far the most important historical example cited in

support of the theory that the military system might well bring on a great war, even though the political leadership in every country very much preferred to avoid it. As far as the nuclear age is concerned, the historical evidence points in the same direction. The Cuban Missile Crisis is often cited as an example of how great the risk of “accidental war” is, of how easily statesmen might “lose control” of the situation because of what goes on within the military sphere. And yet the evidence for this case is to my mind quite clear. The arguments about the threat of “accidental war” in 1962 do not stand up to critical analysis; peace was not hanging by a thread during the crisis; the risk of a nuclear holocaust was not nearly as great as many of us had assumed at the time.¹⁰

Whatever the general validity of the “inadvertent war” theory, it may well be that in specific situations there is a real risk of “strategic instability,” and at such times this is a problem very much worth thinking about. And indeed, if there ever was a time in which this problem was real, it was the 1950s. It was not simply a question of the vulnerability of strategic forces, then quite substantial on both sides, but especially on the Soviet side. The problem of “instability” was magnified by the fact that American strategy relied on striking first: massive retaliation, as David Rosenberg says, was really massive preemption.

This is a point that many people resist accepting, and for a variety of reasons both the Left and the Right now like to argue that the Eisenhower strategy was ultimately just a gigantic bluff. But the evidence on this subject is quite compelling. In December 1954, for example, President Eisenhower, in a meeting with top military leaders, pointed out that with the new weapons the United States “has reason to be frightened for its safety” for the first time in its history. “He indicated,” according to the memorandum of the meeting, “that the first priority must therefore be to blunt the enemy’s initial threat—by massive retaliatory power and ability to deliver it; and by a continental defense system of major capability.” Clearly, the only way US retaliatory power could help blunt the *initial* attack was by destroying enemy forces before they got off the ground, and later in that meeting Eisenhower “indicated his firm intention to launch a strategic air force immediately in case of *alert* of actual attack.”¹¹ Note also his comments in a National Security Council meeting earlier that year: “The President, at this point, referred to Clausewitz

and to one of the principles enunciated by him which, when applied to this situation, called for the capability of diminishing as much as possible the first blow of an enemy attack. He referred to our desire to have this capability, and stated in summary that for anyone to belittle or shrug off the situation which confronted us would be fatal."¹²

This then was a situation in which "strategic instability" could quite properly be taken as an extremely serious problem. The odd thing, however, is that the stability doctrine, the basis for modern arms control thinking, took hold precisely at the time when, quite independently, "instability" was disappearing as a problem. With the introduction of Polaris and Minuteman, American strategic forces were becoming invulnerable to a first strike. This shift in the strategic environment might have been expected to lead to a corresponding shift in the focus of arms control thought. But oddly enough, the importance of the new weapons was played down. Brodie, for example, in a 1959 speech where he laid out some of the new arms control ideas, did ask whether "Polaris submarines and underground ICBMs" would solve the vulnerability problem. "The answer," he said, "is that they will help, but we have to remember that the problem is at the same time also getting more difficult in many ways." There was, he thought "always likely to be a considerable advantage in striking first, and it is up to us to see that such an advantage is at least minimized for the opponent."¹³

Is the risk of preemption still a serious problem? Given the present size of the arsenals, the most common view among people professionally concerned with these issues is that a full-scale first strike would be essentially suicidal—not just today, but for the foreseeable future as well. "Nobody seriously believes," Schelling recently pointed out "that either side's capacity to retaliate after receiving a nuclear attack is, or is going to be, in sufficient doubt to make preemption a preferred choice in any imaginable crisis."¹⁴ The counterargument is that the military establishment still invests heavily in counterforce, and this suggests a certain willingness, in the final analysis, to strike first in a general war. But this argument is weak for a number of reasons. First of all, the sort of counterforce targeting embodied in the war plans does not necessarily reflect a real commitment to anything like a first-strike strategy. It can be explained in other ways—for example, in terms of traditional military

approaches to war fighting that were continued out of habit, well into the era of secure second-strike forces. Moreover, it is not up to the generals to decide whether to launch such an attack, and there is every reason to suppose that the political leadership is viscerally opposed to first-strike strategies. Even in the early 1960s, when the United States had something very close to a first-strike capability and public attitudes about nuclear war were very different from what they are today, even some of the most hawkish people in the government were very opposed to the idea of a first strike. At the time of the Berlin crisis, Paul Nitze, for example, thought the United States should "go to great lengths to avoid initiating war, general or limited, to hold on in Berlin," and by this he meant that America should "yield" or even be "routed out" of her position in that city, rather than "venture war."¹⁵ Today, a nuclear first strike is even more out of the question than it was during the Kennedy period. And, finally, technical problems having to do with the vulnerability of command and control systems are sometimes alleged to be a source of crisis instability. This might in fact be the case if an attacker were able to paralyze an enemy's strategic force by destroying his command and control system, but the bulk of the evidence indicates that an attack of this sort would lead to an all-out response.¹⁶

Given all this, it is remarkable how much weight the stability theory continues to carry. This is no doubt due to the total absence of intellectually respectable alternatives. Indeed, as far as the official strategic arms control negotiations are concerned, the American effort since 1974, as Schelling noted, has apparently not been "informed by any coherent theory of what arms control is supposed to accomplish." The focus in recent years has been on offensive weapons; but the "proposals and negotiations" in this area he judged "to have been mostly mindless, without a guiding philosophy."¹⁷

A situation where the central purpose of arms control is simply to reach arms control agreements is indeed unsatisfactory, not least because it diverts attention from more important problems relating to the stabilization of the great power peace. How then should the issue be approached? The answer is in principle quite simple and flows from a general understanding of the nature and meaning of warfare. If war is essentially a political phenomenon, military power exists for political purposes, so military measures, including arms control measures, should be judged essentially by a political yardstick. If

serious political conflict exists, then the threat of engaging in a military competition, and even the manipulation of a certain risk of war, may therefore have an important role to play. It is wrong to assume that ruling out these instruments of policy will necessarily result in greater stability: the political conflict will not just disappear, but will rather run its course in some way or other—through a competition in simple threat making, for example—and there is no reason to assume that such a system is more likely to lead to a peaceful settlement than one in which military policy plays a central role. It would have been better, for example, if the western countries had not been so attached to disarmament in the 1930s, if the Anglo-German Naval Agreement of 1935 had never been signed—or if the American government in the late 1940s had not been so reluctant to build up its military forces, to a certain extent out of the belief that some form of nuclear arms control had to be sought.¹⁸

On the other hand, in a time of improving relations, and especially in a period of deep peace, the situation is very different. Military competition no longer has a political function, whereas ending it and stabilizing the military relationship does have a positive role to play. Arms control is the reward the great powers give each other for friendly political behavior, the symbol of and natural complement to political accommodation. With political stability, military threats are pointless, and military behavior that might have made perfect sense in a time of conflict now becomes confusing and disconcerting; it thus should be ended, and in principle the transition to less threatening military structures can best be managed if both sides are talking to each other and cooperating in the transition. What is most needed here is a common understanding of the sort of military regime to be realized and a common understanding of the rationale for bringing it about. Informal conversations, aimed at bringing about a meeting of the minds about what should be going on, are probably more important than formal agreements.

Arms control is in this sense just the icing on the cake of political accommodation. The fact that it is of *secondary* importance, and that a stable *political* structure has to be the overriding goal, has to be made abundantly clear, even if it means swimming against the tide of popular preconception. The rhetoric that assumes that arms control equals peace clearly needs to be deflated; in an era of peace, arms control should be treated more as a technical problem than as a

life-or-death issue; the reports of arms control talks should be pushed off the front pages; and the issue should receive about as much attention in the media as, say, trade negotiations.

In one respect, however, arms control can be of enormous primary importance. This is the area where the construction of security regimes is really a way of dealing with important political problems. If war can be a continuation of politics by other means, then so can arms control, and political negotiations can be conducted in the guise of arms control talks.

Europe is, in this regard, by far the most important case. The political future of the continent is now a great question mark. The Cold War, whatever else one might think of it, certainly created a stable situation on the continent—a situation where American power and Soviet power stalemated each other so completely that neither state, and obviously no other state, had very much room to maneuver for basic change in the system. But if this is the case, the ending of the Cold War must once again raise the problem of stability in Europe. Will a stable structure of power take shape on the continent, or are we in for a new period of instability—not right away of course, but maybe ten or twenty years down the road?

One can already see the basic outline of the problem. It is as though two paths have opened up. The first, in a sense the more “natural” path, leads to an American withdrawal from Central Europe—whether because the Germans want the United States out, or because the Americans no longer see any need to stay in—and to the resurgence of a unified Germany as a great power. After decades of division, after being treated for years as a pawn in international politics, in no real sense master of her own fate, Germany would be sorely tempted to reassume her natural status as a great power. But in the nuclear age, true great power status implies a substantial, independent nuclear capability: no longer really protected by America, but relatively free for the time being from Russian power, it would be a question for the Germans of “now or never.” Whatever happens to the Soviet Union, Russia will always be a great power, and it would be intolerable for a nation like Germany to be naked to military pressure from the East. In that case, international politics in Europe will be dominated by the triangular relationship between Germany, Russia and the Western powers—as indeed it has been, in one form or another, since the beginning of the century.

The other path leads to a more “constructed” political system. Germany will certainly be reunified, but may remain nonnuclear. The condition for this would have to be a continued American presence, and perhaps also a continued Soviet presence, in Central Europe. But there would have to be a rationale for this: if the security structure is no longer to be based on the Soviet threat, it would have to be based on something else. But on what? The goal is to create a stable structure of power. But since the language of power politics is not politically acceptable, especially in the United States but also in democratic cultures quite generally, one has to talk the language of arms control—of negotiated security regimes, of nuclear-free zones, and so on. If talk of the balance of power sounds distasteful, archaic, and maybe even a little too academic, one can instead speak of a “European security system,” or an “organized peace” in Europe.

A multilateral framework is needed to legitimate, and thus to further stabilize, a settlement of this sort. NATO itself, Pierre Hassner once argued, had to be understood in these terms:

To balance Russian power and provide a Western framework for Germany’s energies, to protect Germany both from Russia and from herself, to prevent both from attempting, either jointly or individually, to gain hegemony over the continent; this is the essence of the Atlantic alliance. This is why the presence of American troops in Germany in their double, primarily protective but also, discreetly, controlling function is the one tangible expression of the alliance whose disappearance would directly and fundamentally transform the structure of the continent.

He went on to point out that it was “precisely the ambiguous nature of the German-American relationship that puts it in danger of becoming unacceptable to either of the two partners or to both, and, even more, of provoking fears of joint hegemony in the rest of Europe.” This then provided the rationale for a formal European security regime: “Some kind of multilateral or collective framework is then a necessity both as legitimation and as a counterweight.”¹⁹ But the same sort of point will apply to any future security regime for Europe.

The issue of arms control in Europe turns largely on how these two alternatives stack up against each other. How much of a risk is there in letting events take their own, “natural” course? How much of an

effort will be required to prevent events from moving in that direction? If the potential gains are high, and the effort needed to realize these gains is within reason, then it may make sense to try to construct a new political regime in the guise of an arms control settlement.

What then are the risks that a full resurgence of German power would entail? Is it to be assumed that because in the past a strong Germany was linked to an unstable political system, this pattern will reemerge in the future? The answer is no, partly because the imperialist aspirations which played such an important role in driving German policy before the two world wars have been discredited by historical experience, and partly because the hope of radical territorial revision is absurdly out of place in a world where one's potential adversaries are armed with substantial nuclear forces. To be sure, the sharp line of demarcation that characterized the Cold War period is being replaced by a zone of political uncertainty in East Central Europe, and the unclear political status of that area might well lead to a certain degree of instability, as Germany and Russia compete for political advantage there.

The risks, though limited, are real enough to warrant a certain effort to create an even more stable system. Maybe Germany will be content to remain under American protection; maybe new arrangements can be worked out, at least nominally through the arms control process, that will provide for continuing stability in Europe. If arms control has a future, this, I think, is where it lies.

Note: This article was written in December 1989.

ENDNOTES

¹Some of Jerome Wiesner's comments in his Foreword to the 1960 *Dædelus* arms control issue may be taken as representative of this very common point of view.

²See, for example, Paul Kennedy, "Strategic Aspects of the Anglo-German Naval Race," in Kennedy, *Strategy and Diplomacy, 1870-1945* (London: Allen and Unwin, 1983).

³Bernard Brodie et al, *The Absolute Weapon: Atomic Power and World Order* (New York: Harcourt Brace, 1946), 84.

⁴George Kennan, "Threat Lies in Arms Race, Not Force," *New York Times*, 8 December 1985, 26E.

- ⁵Bernard Brodie, "Unlimited Weapons and Limited War," *The Reporter*, 18 November 1954, 18. For other examples of the gunfighter metaphor, see Albert Wohlstetter, "The Delicate Balance of Terror," *Foreign Affairs* (January 1959): 230; and Thomas Schelling, "Surprise Attack and Disarmament," *Bulletin of the Atomic Scientists* (December 1959): 414.
- ⁶Thomas Schelling, "The Reciprocal Fear of Surprise Attack," in Schelling, *The Strategy of Conflict* (Cambridge: Harvard University Press, 1960), 207.
- ⁷Robert Jervis, "The Political Effects of Nuclear Weapons: A Comment," *International Security* 13 (2) (Fall 1988): 90.
- ⁸Bernard Brodie, "How Much is Enough? Guns versus Butter Revisited," California Seminar on Arms Control and Foreign Policy, Lecture Series No. 56, August 1975.
- ⁹See Marc Trachtenberg, "The Coming of the First World War: A Reassessment," to be published in Trachtenberg, *History and Strategy* (forthcoming).
- ¹⁰See Marc Trachtenberg, "New Light on the Missile Crisis?" *Diplomatic History* 14 (4) (Spring 1990).
- ¹¹A. J. Goodpaster, Memorandum of Conference with the President, 22 December 1954, Ann Whitman Papers, Ann Whitman Diary, Box 3, Dwight Eisenhower Library, Abilene, Kansas. Emphasis added.
- ¹²Discussion at the 208th Meeting of the National Security Council, 29 July 1954, Ann Whitman File, NSC Series, Box 5, Eisenhower Library.
- ¹³Bernard Brodie, "Disarmament Goals and National Security Needs," Washington State University talk, 5 March 1959, in Marc Trachtenberg, ed., *The Development of American Strategic Thought*, part 3, vol. 3 (New York: Garland, 1988), 128–29.
- ¹⁴Thomas Schelling, "What Went Wrong with Arms Control?" *Foreign Affairs* (Winter 1985–1986): 219.
- ¹⁵Nitze to Lippmann, 26 October 1959, Acheson Papers, Box 23, folder 295, Yale University Library; and, using very similar language to refer to his attitude in 1961, Paul Nitze, *From Hiroshima to Glasnost: At the Center of Decision* (New York: Weidenfeld, 1989), 196.
- ¹⁶See, for example, Harold Brown, *Thinking about National Security: Defense and Foreign Policy in a Dangerous World* (Boulder, Colo.: Westview, 1983), 79.
- ¹⁷Schelling, "What Went Wrong with Arms Control?": 224–25.
- ¹⁸The decisive shift in US policy took place in 1949. In July of that year, President Truman told his chief advisers: "I am of the opinion we'll never obtain international control. Since we can't obtain international control we must be strongest in atomic weapons." Cited and commented on in David Rosenberg, "The Origins of Overkill: Nuclear Weapons and American Strategy, 1945–1960," *International Security* 7 (4) (Spring 1983): 21–22.
- ¹⁹Pierre Hassner, "The American World Power and the Western European Powers," in Karl Kaiser and Hans-Peter Schwarz, eds., *America and Western Europe* (Lexington, Mass.: Heath, 1977), 335–36.

Crisis Stability and Conventional Arms Control

EARLY THEORISTS OF NUCLEAR ARMS CONTROL argued that heavily armed political competitors had a strong interest in “crisis stability,” the reduction of military incentives to strike first under crisis conditions, and that arms control could help them achieve this objective.¹ This essay examines the prospects for arms control to enhance crisis stability among political competitors armed solely with conventional weaponry. I argue that two sets of obstacles, political and military, must be considered in assessing the prospects for such agreements. Political obstacles obstruct both nuclear and conventional agreements. Military obstacles should be low for nuclear agreements, but much higher for conventional ones. The very nature of conventional warfare—especially among land powers—makes it difficult to design forces that simultaneously contribute to crisis stability and to deterrence of a motivated adversary. I close with a discussion of some things of a limited nature that conventional arms control might accomplish.

CRISIS STABILITY VS. DETERRENCE IN NUCLEAR ARMS CONTROL

Reasoning from military capabilities alone, tensions between the goals of designing forces for crisis stability and for deterrence should be weak in a nuclear competition. But with the exception of the treaty limiting antiballistic missiles, it is hard to show that superpower arms control succeeded in enhancing crisis stability, or that it even tried.²

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States acquire military capabilities for security, or aggression, or both. Unfortunately, it is often difficult for others to see their true political purpose from these capabilities—forces for defense and offense are frequently indistinguishable.³ Where competitors possess large, offensively capable forces, there are often powerful incentives to strike first in the event that a political crisis raises the possibility of war. “Stability” theorists aimed to restrain the development of nuclear forces with these qualities. Given the tremendous risks and costs of a nuclear war, stumbling into one inadvertently would have been a uniquely tragic catastrophe. Given these same risks and costs, stability theorists doubted that anyone would launch a premeditated nuclear war. Agreements that enhanced crisis stability would so strengthen retaliatory capabilities, that they would also reduce the possibility of a considered, deliberate nuclear attack.

Thus, nuclear arms control theorists interested in stability did not have to pay a great deal of *distinct* attention to the main reason why states have armed themselves in the past—to deter aggression and to defeat it if it occurs. Deterrence aims to influence an adversary’s perception of the risks and costs of military action—convincing the prospective challenger that these outweigh any possible benefits. Secure second-strike retaliatory forces on both sides would naturally achieve this and simultaneously enhance crisis stability. Only the problem of extending the American nuclear deterrent to cover threats to its principal allies, NATO and Japan, suggested that other capabilities might be needed in addition to the kinds of nuclear forces that enhanced crisis stability. But given the risks of nuclear escalation from such challenges, the stability theorists deemed relatively limited military expedients to be an acceptable way to buffer against them. (The importance of these concerns ought not to be minimized. They caused a large buildup of theater nuclear weapons and conventional forces in Europe.)

US and Soviet nuclear arms control negotiations did not, however, focus on crisis stability in any sustained fashion.⁴ Indeed, to the extent that one can find a focus of these efforts, one could (charitably) interpret them as efforts to enhance a particular conception of “deterrence.” These negotiations aimed at producing rough parity—even in “destabilizing” capabilities. Although we do not know much about Soviet calculations and purposes, on the US side the assessment of proposed agreements was dominated by concern for eliminating

the possibility that a Soviet leader could see any advantage—however small or theoretical—in a nuclear attack. Robert Jervis terms these concerns a “conventionalization” of thinking about nuclear weapons.⁵ General thermonuclear wars were conceived as duels that might be won on points, and any possible advantage in such a duel needed to be either eliminated or offset. Political causes at both the domestic and international levels played their part in thwarting agreements.

Military organizations prefer offensive military strategies for a host of organizational and institutional reasons. At the international level, states in conflict often characterize each other as willing to accept high costs for the sake of expansion; thus, they perceive that only the most awesome military capabilities will serve to deter. Both political causes contributed to the retention of large “warfighting” capabilities. If the “conventionalization” of nuclear thinking could stand in the way of agreements to enhance crisis stability, then, in the world of real conventional forces, such agreements are likely to be especially difficult—since military obstacles are added to these strong political ones.

CONVENTIONAL FORCES, CRISIS STABILITY, AND DETERRENCE

The basic nature of conventional warfare makes it difficult to reconcile the goals of crisis stability and deterrence in the same force structure. Force structures that have been proposed to achieve this reconciliation are politically unattractive; arms control agreements that attempt to impose them on the competitors are inherently quite fragile from a military perspective.

Because much of our thinking about arms control has been influenced by efforts to limit nuclear arms, it is useful to contrast conventional forces with nuclear forces to free ourselves of nuclear biases. The huge differences between the two are usually highlighted in order to free thinkers from conventional biases. These two types of forces differ in three ways that have important consequences: first, in *destructiveness*; second, in *organization*; and third, in *application*.

Nuclear explosives are extraordinarily cheap, small, and destructive. When employed for military purposes by states with substantial economic and technological resources, they produce forces against which it is extremely difficult to devise a plan for victory. Because of their size, nuclear weapons are easy to package for delivery by plane,

missile, or torpedo; they are also easy to hide. Because they are cheap, many can be deployed. Any nuclear power victimized by a nuclear attack is likely to have a large number of weapons survive; if fired, many are likely to penetrate enemy defenses (if they exist), and are likely to have catastrophic results, especially against cities. Nuclear forces seldom have to fight each other to accomplish their counter-value missions. They need only to survive, evading enemy attacks and enemy defenses.

Because of the tremendous destructive power of individual nuclear units, SSBNs, bombers, and multiple warhead ICBMs, nuclear forces have one very important “organizational” quality. At least for countervalue missions, individual nuclear units do not need much support from other elements of the force structure. Nuclear forces have low levels of interdependence from the perspective of counter-value warfare; they are characterized by “mechanical solidarity.”⁶ If half a nuclear force is destroyed, the damage potential of the other half against cities remains extraordinarily high. If its communications and intelligence apparatus is wrecked, devastating attacks on enemy cities can still easily occur. In conventional conflict the cohesiveness of a defending force can be broken, leaving its individual combat units capable of little. Individual nuclear units, on the other hand, retain an extraordinary capacity for damage, even after a very successful surprise attack. One may, of course, view nuclear forces through conventional lenses and dispute the preceding characterization. One may imagine successful counter-command-and-control, counterforce, and defensive operations that badly degrade an adversary’s capability to engage in classical military uses of nuclear forces. Those contemplating a nuclear attack also must consider the sheer destructive power that will remain available to the victim.

With one exception—“guerrilla defense” organizations—modern conventional forces are completely different. Conventional high explosives are not very destructive, and enormous quantities have generally had to be delivered to destroy civilian or military targets. Improvements in the accuracy of conventional weaponry have so far had only marginal effects on this. Moreover, to get these explosives where they can do damage requires the intense cooperation of many units—combat, logistics, intelligence, and command and control. This is true for all kinds of forces—land, air, and sea—and, in most cases, cooperation among at least two of these is also necessary.

Because of the need for cooperation, because of this “organic solidarity,” these forces are somewhat fragile. They can be “taken apart” in ways that drastically reduce the combat effectiveness of individual units.⁷ Relative to nuclear forces, conventional forces are much more vulnerable to catastrophic failure. Thus, it will always be plausible and, relative to nuclear forces, reasonable for some member of the civilian or military security elite of a given country to argue that victory (or defeat) is possible.

Unlike nuclear forces, which do not have to win a military victory to hurt the enemy, conventional forces must fight each other before they can exert any direct effects on their adversary. In Jonathan Shimshoni’s formulation, they are “competitive in application.” Indeed, it is often the actual clash of these conventional forces that produces much of the pain and suffering inflicted on the competitors. In intense political competitions arguments will be advanced that, by virtue of ideology or demographics, an adversary is more willing or able to accept battlefield casualties in pursuit of a military objective, that this is meaningful for the prospects of battlefield success, and therefore affects the likelihood of successful deterrence.⁸ Similarly, states will fear adversaries who find ways to inflict particularly high casualties on the battlefield. Marginal differences in value systems, size, wealth, and population may seem minor where all are vulnerable—as they are in nuclear competitions—but they can have major military importance in conventional war. Thus, statesmen and soldiers will try to minimize their own pain and suffering on the battlefield, and maximize that of the adversary. Battles of attrition will be attractive to a state’s leaders only if their military is advantaged in such combat.

Because they are “fragile” and “competitive,” conventional forces encourage struggles for marginal advantage in peacetime, during mobilization, and in war. Victory is possible, but only through direct engagement with the adversary’s forces. Conventional competitions place a high premium on surprise, secrecy, *ruses de guerre*, weapons quality, training, motivation, and damage limitation.

To summarize, conventional forces are fragile where nuclear forces are sturdy. Conventional forces depend on secrecy; nuclear forces depend on survivability. Conventional warfare is the realm of military strategy; nuclear warfare is the realm of diplomacy. Conventional forces seek victory; nuclear forces seek a *modus vivendi*. These

fundamental differences in the military nature of the forces should make nuclear arms control agreements which enhance crisis stability easier to achieve than similar conventional arms control agreements simply because there is so much more to disagree about. Nuclear deterrence, even of a motivated adversary, should seem fairly easy to achieve. Hence, the relative failure of the superpowers to achieve such nuclear arms control agreements, indeed their failure to integrate acceptance of the fundamental differences between nuclear and conventional forces into their arms control efforts, does not bode well for efforts to achieve conventional arms control agreements that enhance crisis stability.

CRISIS STABILITY AND DETERRENCE—TENSIONS IN MILITARY STRATEGY

There are three types of ideal conventional military strategy and accompanying force structures from which a state can choose. None of them simultaneously serve the twin goals of crisis stability and deterrence as well as nuclear retaliatory forces. Offensive strategies aim to disarm an adversary. They often include first-strike preferences and therefore erode crisis stability. The July Crisis of 1914, followed by the outbreak of the First World War, is generally cited as the premier example of nonnuclear crisis instability. Defensive military strategies simply aim to deny an adversary his military objectives: stopping an adversary at the border in the case of an attack is considered a success. The French military strategy of 1940 was a largely defensive military strategy.⁹ Many believe that such strategies contribute to crisis stability, but they may be less effective deterrents of motivated aggressors.

The third strategy organizes conventional forces for punishment. Many of the smaller countries on the periphery of great power competitions, such as Finland, Sweden, Switzerland, and Yugoslavia, adopt such strategies. These countries do not actually expect to keep their adversaries out (although they usually intend to try). Rather, they organize their forces for sustained resistance, so that a prolonged and unpleasant price can be exacted. Guerrilla campaigns against foreign occupiers exemplify such strategies. They have frequently been successful against great powers, though at considerable cost to the resistance. For example, while the Soviets suffered several thou-

sand casualties and spent a great deal of money in the recent war in Afghanistan, the Afghans saw their entire infrastructure wrecked, and suffered hundreds of thousands of dead and wounded.

States with defensive or punitive military strategies have little capability to conquer their neighbors, and so they help the cause of crisis stability. Indeed, if neighboring states had no overriding political disputes, they might find it in their interest to adopt such strategies and the accompanying force postures. But this is a much narrower set of circumstances than those specified by the original nuclear arms control theorists who were interested in finding ways to enhance stability among states involved in intense political competitions. Specialized defensive or punitive strategies and force postures will not be very attractive to states that perceive their neighbors as politically aggressive.

Conventional punitive forces require the defender's society to suffer along with its military, and only impose suffering on the invader's military. At least in the abstract, the "will" of the defender must be much higher than the attacker's. This is rather different from the nuclear world, where each side can inflict historically unprecedented damage on the other. The defending state must engage in strenuous and sustained peacetime efforts to convince prospective challengers that the will of its population is very high, and that its capabilities for sustained conventional punishment are in good order.¹⁰ The state with a conventional punitive strategy may be an easy nut to crack, but a hard one to chew. Because of the risk of domestic destruction, this is not a military strategy that states are likely to adopt if they have the power to try something else.¹¹

Purely defensive strategies also face problems in deterring a motivated adversary. Against a purely defensive force, organized along classical military lines, the aggressor may come to believe that the potential benefits of a challenge are high and the risks low. If a conventional defense is organized quite literally to deny the adversary entry, then if the defending force is beaten, the country it has defended can be conquered and enjoyed (as France was in World War II). If the challenge fails, the aggressor can break off the action with little risk of counterattack. On the other hand, the credibility of a state with a defensive strategy to commit itself to military resistance may be inherently higher than that of a state with a conventional punitive strategy. The former has a chance to prevent damage to its

society, while the latter simply accepts it as the cost of doing business. The conventional defensive state is a tough nut to crack, but perhaps an easy one to chew.

When potential adversaries are suspected to want things outside their borders and are believed willing to pay quite a bit to get them, the political and military leaders of a threatened state will often desire offensive capabilities to enhance deterrence. Offensive capabilities create the risk of counteroffensives against the aggressor's homeland. The aggressor risks the destruction of his military power and the loss of territory, economic infrastructure, and civilian lives. Military defeat may cause the regime to fall. The greatest punishment that can be administered to an aggressor in the nonnuclear world is conquest.¹² It is easy, however, for the security motives of a status quo power to generate capabilities indistinguishable from plain old offensive capabilities. Professional military officers tend to prefer offensive strategies; this is a law-like relationship.¹³ When their civilian bosses believe that their adversaries are politically aggressive, there are few pressures toward fastidiousness in military preparations. Status quo states who start out to buy some offensive capabilities for dissuasive purposes can easily drift toward undifferentiated offensive military strategies and capabilities which do not favor crisis stability.

From a strategic point of view, there are then tensions between conventional capabilities and strategies that favor crisis stability and those that favor deterrence of a motivated adversary. Offensive strategies should have the greatest deterrent power against motivated aggressors, but they should not be conducive to crisis stability. Conventional defensive strategies and punitive strategies should be more conducive to crisis stability, but perhaps less conducive to deterrence of a motivated aggressor. This is a relative statement. If conventional forces were widely perceived to advantage defensive action, and this advantage were perceived to be very persistent, states could reliably deter one another with forces conducive to crisis stability. But such systemwide agreement is uncommon: military organizations tend to prefer the offensive; fearful civilians have reasons to want offensive capabilities; the fragile and competitive nature of conventional forces invites soldiers to seek ways to erase defensive advantages and to fear that their adversaries are trying to do the same.

Proposals in which competitors agree to constrain themselves to defensive military power have become popular in discussions of conventional arms control. The toughest case for such proposals is a competition between land powers with relatively equal resources and gentle terrain along their borders. Ground forces are the preeminent weapon of conquest, yet for states in this predicament they are also the best defense. Even if the parties in a ground warfare competition could achieve *defensive specialization* by agreement, those concerned with *deterrence* will wonder how quickly and/or surreptitiously a defector from the agreement can find a technical and tactical solution to the defender's strength. This defection may arise in the form of "cheating" on the agreement to achieve an offensive capability that could be used in a surprise attack, or outright withdrawal from the agreement to achieve a lead in the redeployment of known offensive capabilities. By virtue of the "legislated" quality of the mutual defensive advantage, defectors can choose from a variety of offensive solutions to be found in history books. As an alternative, defection from the agreement would permit the deployment of innovative offensive solutions worked out in secrecy. Finally, defensive specialization suggests that if war breaks out, it will be characterized by high attrition. Each side will wonder whether the other will simply prove more willing to suffer in such a competition by virtue of a larger population or a more successful political mobilization.

The nature of defensively specialized forces suggests that defection from an agreement on specialization is more attractive than defection from nuclear arms control agreements. Against defensively specialized forces a dedicated attacker may have a reasonable chance of a definitive victory coupled with only a small risk of either sustained punishment or counterinvasion. Because most modern conventional forces, whether designed for offense or defense, are characterized by high levels of internal interdependence, they can collapse under stressful conditions. Defensively specialized forces have the added problem that they are often (though not necessarily) static, both materially and intellectually. This may permit the dedicated offender to attack "intellectually" in peacetime.¹⁴ In the event of war, these forces invite the concentration of specialized offensive assets to break them at critical points. When hard pressed, the lack of mobile protected firepower generally associated with the offense makes it hard to withdraw and reconstitute, and hard to mount tactical

counterattacks. With sufficient political pressure and human creativity, a challenger may develop a *plausible* plan for victory against a highly specialized defensive force, a plan that may seem worth a try.

For example, fixed ground defenses today are more vulnerable to concentrated firepower than ever before. The harder and more obvious the structure, the greater the attacker's incentive to design a special weapon to destroy it. (This process occurred during the strategic nuclear competition as each side refined its capabilities for silo attack.) Moreover, insofar as a few breakthroughs of an extended defensive line of ground forces may be sufficient to produce a generalized catastrophe for a largely static defender, customized high-cost breakthrough capabilities may be attractive. For example, the Germans employed a small number of heavy artillery pieces to break up the Belgian forts at Liege in 1914. The employment of motor transport and helicopters by the attacker would permit faster exploitation than was possible by foot infantry in the First World War. Even the abandonment of tanks and infantry fighting vehicles—generally thought to reduce substantially the offensive potential of ground forces—might not confidently advantage the power of the defense relative to the offense, particularly if the offender were highly motivated and willing to accept high casualties in its initial operations.

Parties to this type of accord would probably demand very intrusive inspection to monitor this possibility. They would want access to military testing ranges, exercise areas, and laboratories. They would be interested in “dual use” assets: all-terrain civilian vehicles, helicopters, construction equipment, and trucks. They could even want access to each other's fortified positions to ensure that specialized assault assets are not being stockpiled and hidden there. All of these intrusive verification provisions would of course provide useful intelligence to the side that chooses to break the agreement.

Dangers arising from defection could also occur after a clear withdrawal from the terms of the agreement by either of the parties. This situation approximates the condition of the principal European powers in the late 1930s, a comparison not lost on deterrence enthusiasts for whom this period is the dominant historical metaphor. Based on World War I experience, European militaries, *including the German Army*, generally had a high level of respect for tactical defense. Indeed, the armored campaign of May 1940 would

have been impossible if not inconceivable for Germany as late as the spring of 1938. Even an unopposed, mechanized road march was barely within German capability during the *Anschluss*. A modest lead in the military competition, a high level of technical military competence, and a high level of political pressure to innovate upset a system of perceived defense dominance in short order.¹⁵ The state of social science on the issue of military innovation does not permit us to say whether this is the exception or the rule. World War I presents a completely different lesson with defense dominance surviving years of combat. Nevertheless, the experience of the 1930s is a cautionary lesson.

Mutual *counteroffensive* strategies and capabilities might modestly enhance crisis stability and preserve the competitors' confidence that others would be deterred from a deliberate challenge. A counteroffensive capability need not depend on preemption, a dogmatically offensive doctrine, a purely offensive force structure, or even a degree of superiority for its success. One may deploy one's forces on the theory that the best way to disarm an adversary is to induce him to first smash his own forces to pieces against one's defenses and then to counterattack. Defenses may be based substantially on forces that have been carefully planned to avoid some of the brittleness problems to which overspecialized denial capabilities fall prey. To this end the attributes of mobility, camouflage, self-protection or rapidly deployable protection, density, range, readiness, and the potential for tactical and operational counterattack should be retained. Careful attention should be paid to the principle of defensive surprise.

Arms control could help reduce first-strike fears and temptations between competitors who nevertheless wish to retain such counteroffensive capabilities. This would involve elaborate status-of-forces agreements on the positioning, readiness, and exercising of forces. Particular attention would need to be paid to agreement on which kinds of forces most contribute to preemptive incentives when deployed close to borders. These accords would require some intrusive verification. Indeed, the more offensive punch the forces retain, the more intrusive the verification that each side would probably want. Such agreements could reduce the speed and secrecy with which either side could make a transition to an attack posture, while at the same time leaving impressive defensive screens available to slow the others' advance even if surprise were achieved. In theory

each would feel comfortable conceding the first move—in this case mobilization, or transition to an attack posture—to the other.

Fear of defection could limit the applicability of this solution. First, it is not clear that the state that actually intends to stand on the defense gains as much from intrusive inspection as the state that harbors offensive ambitions. The usual military advantages attributed to the defender arise from his potential for defensive surprise—his superior knowledge of the terrain, secret improvements of the terrain, and the secret positions of his own forces.¹⁶ Intrusive inspection may compromise these capabilities to the adversary. Lingering mistrust about the intentions of the adversary may reduce the attractiveness of this solution from the point of view of deterrence.

The defection benefits would be mutual if all parties actually intended to mount an offensive in the event of the first signs of defection by another, but that may not be the case. One side may not be able to take advantage of the information due to constraints from domestic or alliance politics. Even if both sides were equally inclined to jump quickly to the offensive, equal access to this offensively useful information with equal intention to exploit it can hardly be viewed as a contribution to crisis stability. One may simply replace a first-strike advantage with a first-defection and first-strike advantage.

Even the NATO Pact conventional competition—which occurred under the shadow of nuclear deterrence and thus ought to have been less intense than a purely conventional competition, and which was conducted by parties with the finest unilateral intelligence means in history—had this quality. As negotiators and analysts tried to develop stable relationships of conventional forces in the late 1980s, the number of suggested restraining conditions—both in terms of types, readiness, and distribution of forces, and in terms of peacetime verification and monitoring—multiplied wildly. Little technical progress was possible until the outstanding political dispute between the two alliances was virtually resolved. Where political conflict is high, the likelihood that conventional arms control agreements that confidently and substantially enhance crisis stability could be achieved is probably low.

How damaging to crisis stability do counteroffensive postures, either constrained or unconstrained by arms control, actually need to be? The answer rests in part on the extent of civilian control, the

understanding of military strategy and force posture, and, in part, on the professionalism of the militaries called upon to execute the strategy. These considerations are not usually included in calculations of either crisis stability or the adequacy of one state's ability to deter another.

Scholars of security studies explain the outbreak of the First World War, at least in part, by conventional military instability. With some variations from country to country, professional militaries perceived the offensive to be the most advantageous way to wage war at almost every level of combat, from the infantry firefight to the overall strategy of the war. The German and French military leaders, in particular, believed that expeditious concentration of the bulk of their divisions for offensive action could produce an early victory.¹⁷ Similar (if somewhat more ambiguous) views prevailed among Russian and Austro-Hungarian military leaders. These views were institutionalized in military education and in war plans. The results of military exercises that demonstrated the advantages of the defense were deliberately obscured in Germany. Military intelligence that demonstrated the need for more prudent attention to defense was suppressed in France. Militaries had had only intermittent and limited combat experience during the preceding years. The most ambitious offensive military plan, the Schlieffen plan, was devised by an army that had had no combat experience since 1870. Doctrine, war plans, and force posture all focused dogmatically on the offense.

Civilian leaders poorly understood military matters; they seem to have rarely inquired into the details of military planning and seldom challenged military expertise. Moltke's amendments to the Schlieffen Plan required the surprise seizure of Liege at the outset of mobilization, making Germany's mobilization order the only one in Europe to actually require immediate combat. Moltke did not consult the kaiser or Bethmann-Hollweg, the chancellor, when he made this change. Bethmann-Hollweg did not discover that German mobilization meant war until July 31, the day before the actual decision to mobilize was made, and well after the crisis had gained momentum.¹⁸ The British Committee for Imperial Defense was the only extant mechanism in Europe that encouraged regular audits of national military plans by responsible civilians. Many European civilian and military leaders were optimistic about the prospects for a relatively short war of modest cost, although individual expressions of dark

pessimism about the course of a future conflict can be found. On the whole, it is difficult to imagine a situation less conducive to crisis stability.¹⁹

It is plausible that the mere presence of offensive capabilities need not produce high levels of crisis instability if the capabilities are accompanied by civilian involvement in and cognizance of military planning in all states involved in the competition, as well as a flexibility of plans, rather than a commitment to a single option, military doctrines that stress counterattack rather than preemption, a sustained and evident effort by military organizations to preserve defensive as well as offensive capabilities—to be practiced and demonstrated in training and exercises—and public awareness of the costs of modern conventional warfare for the victor and the vanquished alike. A conventional arms control agreement that aims to enhance crisis stability should aim to institutionalize this high degree of attention to the military competition.

This is a tall order, but the contrast between the political-military systems and strategies of 1914 and the still imperfect but nonetheless more advanced systems of Syria and Israel is one possible explanation for the failure of the Syrian-Israeli clashes in Lebanon to spread to the Golan Heights in 1982. Given that both countries possessed sizeable offensive capabilities, were committed to offensive doctrines, had a high conflict of interest, and were fighting each other a few tens of kilometers away, one would have thought that the fighting would spread to the Golan. After the 1973 war there was much speculation among observers of the Middle East military competition that the advantages of preemption had increased, but the 1982 war did not escalate. Sheer fear of the costs of a clash on the Golan Heights may have been a moderating factor in both sides' behavior.²⁰ The Syrians probably understood that they could not win such a clash; the Israelis probably understood that, this time, they would have to pay a high blood price for victory. Intimate acquaintance with each other's military forces and their strengths and weaknesses may have aided the avoidance of an escalation spiral.

The preceding is at best a partial solution to the tensions between the goals of conventional deterrence and crisis stability. This approach deliberately seeks only limited constraints on offensive capabilities. An arms control agreement to reduce first-strike advantages while retaining impressive counteroffensive capabilities will place

high demands on the vigilance of civilian and military leaders. At best, such agreements modestly lengthen the time available for diplomacy to settle a crisis, and reduce the potential for either side to achieve military surprise. But they also preserve extra risks for a challenger, which should add to his caution. If and as political differences between the parties are settled, then accords that further limit the offensive potential of each should seem more attractive.

ENDNOTES

¹Arms control has three possible objectives: reduce the probability of war, the costs of military preparedness, and the pain and suffering of waging war. This essay does not discuss the latter two. The first objective has two aspects: reduce first-strike advantages and thus enhance crisis stability; and eliminate any incentives to launch a war of choice, that is, arrange the forces of the competitors in such a way that neither perceives it can initiate war with a reasonable probability of success. Quantitative, qualitative, and political judgments enter into this second aspect. The remainder of this essay discusses qualitative and political obstacles to the reconciliation of the goals of crisis stability and mutual conventional dissuasion. I do not address the quantitative aspects of the question.

²Although I doubt that such defenses would have ever been effective, the agreement limiting ballistic missile defenses was important. An open-ended offense-defense race could have increased political tensions, spawned illusions about the likely costs of a nuclear war, and consumed more economic resources.

³Robert Jervis, "Cooperation under the Security Dilemma," *World Politics* (1978): 167–214, is the seminal discussion of these problems.

⁴Thomas C. Schelling, "What Went Wrong with Arms Control?" in Robert J. Art and Kenneth N. Waltz, eds., *The Use of Force* (New York: University Press of America, 1988), 671–83, makes this point economically.

⁵Robert Jervis, *The Illogic of American Nuclear Strategy* (Ithaca: Cornell University Press, 1984), 56–63.

⁶I borrow the concepts of mechanical and organic solidarity from Emile Durkheim, *The Division of Labor in Society*, George Simpson, trans. (New York: Mac-Millan, 1933), first published in French in 1893. Durkheim developed these concepts to distinguish between the sources of cohesion in society.

⁷Jonathan Shimshoni, *Israel and Conventional Deterrence* (Ithaca: Cornell University Press, 1988), 11–14.

⁸Even in nuclear competitions, where the potential for damage is virtually equal and nearly absolute, arguments to the effect that the other side places less value on the lives and welfare of its citizens—is simply more willing to accept damage—have been used to telling political effect.

⁹The details are more complex, of course. The French aimed to extend their defensive line into Belgium, which led them into many mistakes.

- ¹⁰Conventional deterrent strategies are conducive to stability in other ways. States that rely on such strategies have no incentive to enter other people's wars; they have little military intervention capability. When such military strategies are part of the political strategy of armed neutrality, which includes the capability to resist *all comers*, they further reduce the incentives of any state to conquer them in order to prevent another from doing so.
- ¹¹This has its counterpart in nuclear competitions. The Soviets and the Americans do not embrace MAD; they continue to search for ways to limit damage to themselves in the event of war. They just have not had much luck.
- ¹²For similar views see Samuel P. Huntington, "Conventional Deterrence and Conventional Retaliation in Europe," *International Security* 8 (3) (Winter 1983–1984). I disagreed with Professor Huntington's policy prescriptions for NATO military strategy. But I agree with his argument that among conventional competitors, the presence of offensive capabilities creates uncertainty for challengers over the magnitude of the costs they will incur for aggression, and that this is a dissuasive factor that purely defensive capabilities do not offer.
- ¹³I develop this argument in *Sources of Military Doctrine* (Ithaca: Cornell University Press, 1984). Jack Snyder reaches similar conclusions on the basis of a slightly different argument in *The Ideology of the Offensive*, (Ithaca: Cornell University Press, 1984).
- ¹⁴It is not unusual, for example, for attackers to construct, and to practice attacking lifesize models of defensive positions that they would like to take. The more static the defenders' positions, the greater the reward for such meticulous offensive planning. The Israel Defense Forces are well known for this, although Egyptian planning for the 1973 canal crossing was equally good.
- ¹⁵The important role of political pressure in the development of the war plan that defeated France in 1940 is outlined by John J. Mearsheimer, *Conventional Deterrence*, (Ithaca: Cornell University Press, 1983), chap. 4. I develop a similar argument in *Sources*, chap. 6.
- ¹⁶Carl Von Clausewitz, *On War* (Princeton: Princeton University Press, 1984), 357–66, develops these points in the context of an argument that defense is generally a stronger form of war than offense.
- ¹⁷In the case of the French Plan XVII this seems to have been an article of faith; whatever the demerits of the German Schlieffen Plan, it laid out a means-ends chain to produce the desired result.
- ¹⁸See L. C. F. Turner, "The Schlieffen Plan," in Paul Kennedy, ed. *War Plans of the Great Powers* (Boston: Unwin and Allen, 1979), 213; and John Moses, *The Politics of Illusion* (London: George Prior, 1975), 86–87.
- ¹⁹See Snyder for beliefs about the offense in France, Russia, and Germany; and Stephen Van Evera, "The Cult of the Offensive and the Origins of the First World War," in Steven Miller, ed. *Military Strategy and the Origins of the First World War* (Princeton: Princeton University Press, 1985), 58–107.
- ²⁰I am indebted to conversations with Jonathan Shimshoni for this hypothesis.

Emerging Themes in Nuclear Arms Control

IN RETROSPECT THE ARMS CONTROL IDEAS described in the 1960 *Dædalus* volume seem obvious, like all deep ideas. According to the *Dædalus* authors, nations in military competition will normally be able, after some searching discussion, to agree to change their military preparations in ways that advance the security of both. Agreement can result when each side abandons hope that it will gain advantage in some military arena through all-out competition, yet fears the other might. Such instances of reciprocal fear will be quite common, since war is an uncertain business and most nations are conservative in their approach to it.

Agreement can also result from a determination not to let anything but a genuine clash of basic interests lead to war. (True clashes of basic interests, it was understood, will lead to deliberate war.) Potential triggers of inadvertent war will also be common in military competitions, since getting in the first blow in war usually carries substantial advantages for one reason or another, technical or psychological. Thus, even in a confrontation where neither side wants to press the issue to the point of war, neither side wants to be behind the other in its preparations either, and so each inadvertently hastens the other forward toward the war neither wants. Finally, in still other instances mutual restraint might save the parties money or face in peace, or lives in war, without otherwise materially affecting their military standoff.

In the sense intended in this essay, arms control is more than diplomacy. It involves more than the exchange of views on security

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affairs, the stating of intentions and fears, the giving of reassurances. Arms control agreements require the parties entering into them to make concrete changes in numbers and types of military forces, in their command and control systems, in their deployments, and in their tests and exercises. In this way desired features of the military relationship are “engineered into” the forces and cannot be changed as quickly as intentions. The true intellectual challenge of arms control is to translate desired security principles into concrete engineering principles for the forces.

The basic notions of arms control, as sketched above, are quite general and elastic, but they have received rather narrow application over the thirty years since the publication of the *Dædalus* issue which described them so well, and which this essay commemorates. Most arms control thinking—and practice—has been dedicated to nuclear forces rather than to conventional forces; to strategic nuclear weapons rather than to tactical nuclear weapons; and to the numbers and types of nuclear weapons rather than to their deployments, modes of operation, tests, and exercises. In fact, it is not going too far to say that arms control has evolved only a single truly powerful engineering principle, namely, that strategic nuclear arsenals should be physically able to survive first strike. This single principle will not carry us very far into the future, as we shall see.

The new and fluid world ushered in by Mikhail Gorbachev will put arms control ideas to a much broader test. The pending START agreement could well lead to a follow-on START II agreement that will essentially put arsenal vulnerability to rest as a problem for US-Soviet nuclear arms control. What tasks will then be left for strategic arms control? Tactical nuclear weapons—short-range missiles, artillery shells, and probably surface naval weapons—will likely be eliminated or withdrawn to bases in the US and Soviet homelands. What arms control ideas will govern nonstrategic weapons? The Conventional Forces in Europe (CFE) talks mark a number of departures for arms control. They concern themselves, first, with nonnuclear forces, for which stability is a poorly defined concept; second, with the security interests of many more than two nations; and third, with the deeply political issues of the new Europe. Meanwhile, the nuclear forces, actual and potential, of France, Britain, and China; of Israel, India, and Korea; of Japan and Germany; and of a growing number of other nations will demand the

attentions of arms control. Finally, chemical and biological weapons, ballistic missiles, and other fearsome and high-tech weapons await their turn at the table.

All these military arenas call for new arms control ideas of a kind that have not been called forth by the Cold War nuclear confrontation. The intellectual challenge, to repeat, is to discover the engineering principles—if such exist—that will make these many and diverse national arsenals around the world reflect in themselves a stable international security.

This essay will concentrate on nuclear weapons, and on two areas of conceptual innovation that will be needed for nuclear arms control in the coming decades. The first need is to identify types or ingredients of strategic stability—and, thus, objectives of negotiation—besides simply assuring hefty retaliation to a first strike. The second need is to develop a consistent outlook on limited nuclear use, and the arms control principles that go with it. The first area of innovation involves mostly the strategic forces; the second involves mostly the tactical forces.

This essay will not succeed in fully formulating the “engineering principles” that should guide future nuclear arms control, but it will sketch the lines along which further thought is needed. The speculations made here assume no reversal of the Cold War thaw, a more or less straight-line projection of several trends in evidence today, and no major wars. The period of our interest begins about ten years from now, when current negotiations and unilateral redeployments will have run their course. It ends about thirty years from now when, one supposes, the second thirty-year commemoration of the 1960 *Dædalus* issue will take the next step. Many of the measures identified for control of nuclear weapons in the following pages can be carried out unilaterally as well as by agreement: arms control and military planning spring from the same security objectives, as the authors of the 1960 *Dædalus* issue prescribed.

STRATEGIC NUCLEAR WEAPONS: BEYOND SIMPLE ASSURED RETALIATION

One “engineering principle” has virtually monopolized arms control thinking and practice: the principle that strategic nuclear arsenals should be made capable of assured retaliation to first strike.¹ So much

is this the case that in the public speeches of negotiators, the editorial pages of thoughtful newspapers, and the analyses of deterrence “theorists,” strategic stability is virtually synonymous with this simple form of arsenal survivability. Light, nationwide antiballistic missile (ABM) systems are destabilizing; so are the SS-18 and the MX, and multiple-warhead missiles generally. Silo basing is bad; submarine basing is good. Cruise missiles and bombers, being “slow flyers,” are fine. These are the simple verities upon which thirty years of strategic arms control have been largely based. Indeed, one is tempted to say that ensuring heavy retaliation to first strike was the *only* specific engineering principle, or negotiating objective, distilled from the broad claims made in 1960 that arms control is a powerful tool to complement force planning and diplomacy.

Let us now suppose that follow-on agreements to START result in US and Soviet strategic arsenals that are drastically reduced (to one-third or one-fourth their current size) and in continuing limitations on active defenses. A wide variety of technically feasible and socially acceptable basing modes for strategic weapons will provide simple assured retaliation when confronted with such small “threats.”² Indeed, the number of weapons that targeteers can devote to an attack on the opposing side’s strategic arsenal will decline faster than the totals since command and control, conventional forces, and war-supporting industry targets, together with a “strategic reserve,” also make demands on the available inventory of warheads. Supposing that arms control results in such reductions over the next ten or twenty years, and that the superpowers invest in survivable basing, what will be left for strategic arms control to do? What should arms control focus on once vulnerability is a “solved problem?”

Assured retaliation the right way: restoring the balance between survivability and control

Both superpowers have taken shortcuts in their pursuit of assured retaliation. To guarantee that retaliation to a first strike would not only be certain, but efficient and thoroughgoing, the strategic forces have adopted operations plans that call for an unwinding of the forces according to a carefully sequenced but inflexible script. The ideal of a deterrent that could calmly sit out a crisis without taking any actions that might aggravate it, and that could ride out a first strike until the enemy had done his worst and then wait patiently for

the president or his successors to deliberate, has been sacrificed in favor of sheer weight of retaliation.

Take the US bomber force, for example. Only a fraction of this force stands alert in normal times. Posturing the entire force to deliver its full weight of retaliation would therefore entail a transition to a higher alert state in the midst of a deepening crisis. If a Soviet missile attack occurred, the bombers would have to receive a warning within minutes of the launch in order to escape safely from their bases. If the attack were real, the bombers and their refueling tankers would fly north, awaiting a message ordering them to continue to their targets. If this order was not received within six or eight hours, the aircraft would have to seek out surviving airbases to refuel and "reconstitute." This is a messy prospect at best, and commanders know it. They are likely to inform the president that they cannot guarantee the effectiveness of the bomber force unless he makes a decision to retaliate within several hours of attack. (They might even be tempted to *assume* he will retaliate within hours, in which case they will see no point in spending money in advance trying to make reconstitution a *less* messy affair.)

Furthermore, if one looks closely at the communications systems that would carry the strike message to the bombers as they headed north, one finds that they would become progressively fewer and less reliable as the hours went by after Soviet attack and bomber takeoff; the president would also be informed that his orders were more likely to be received if transmitted soon after the attack was launched. If the bombers planned to attack relocateable targets in the Soviet Union (an advertised capability), then they would have to depend on targeting information that would quickly become outdated from sensors that might not themselves survive for long. The bombers' way would be eased if their flight over the Soviet Union were preceded by a missile attack on Soviet air defense batteries. So perhaps retaliation plans should give emphasis to the added efficiency to be gained by launching such missiles soon after the attack on the United States. In fact, the silo-based missile force would be most effective if "launched under attack," before attacking Soviet missiles even arrived.

Thus, in many subtle and not so subtle ways, through the cumulative effect of a host of seemingly unavoidable technical and especially *operational* details, hasty and rigid timelines have crept into the workings of the strategic forces. Survivability has been made

contingent, not absolute. The survivable basing modes that result from a true thaw in US-Soviet relations and deep cuts in strategic arsenals, if these occur, should be capable of what might be called “dumb rideout”: their ability to retaliate effectively should be independent of warning or other information, independent of what other forces in other basing modes are doing, and independent of time. Arms control should concern itself more with the *operational* implications of assured retaliation than it has in the past.

Survivability for command and control. It has finally become widely recognized that a distinct, and in the current strategic arsenals, more serious, form of vulnerability resides in the command and control systems.³ Efficient postattack working of the strategic command and control system is more contingent, and applies more time pressures, than the working of the weapons themselves. There are many facets to command and control vulnerability, and it presents a much more complex picture than arsenal vulnerability.⁴ Most warning and communications systems would function for only a short time after commencement of an attack. But identifying a legitimate chain of command might take many hours. *Mundana*, like backup power generators and command aircraft running out of fuel, and *exotica*, like blackout and electromagnetic pulse, all apply constraints to the system and, ultimately, to decision makers.

The same arms control reductions that improve arsenal survivability can improve command and control survivability. But more attention should be paid in future arms control thinking to the distinctive problems of command and control. Distinct engineering principles for negotiators could follow from such new attention: for example, bans on earth-penetrating warheads designed to attack underground command bunkers; bans on depressed-trajectory missile flights (also useful for bomber survivability); limitations on antisatellite systems capable of attack on the warning and communications satellites in high orbits; bans on sea-launched cruise missiles that could detonate on near-coastal command and control centers with no warning; and missile warning sensors cooperatively emplaced in one another's missile fields.

More restrictive enabling devices. With the pressure on command and control survivability eased, it will finally be possible to reduce drastically the number of groups of people who have the physical

capability to use nuclear weapons.⁵ This physical capability has been dispersed at command levels below the president (who has the sole *authority* to order use of nuclear weapons) to guarantee that it would survive attack. The clearest example of such dispersal can be found in the missile submarines, which are capable of launching their missiles without external aid through the collective action of a number of crew members. The future goal should be that only the highest civilian and military leaders possess the wherewithall to “enable” military operators to employ nuclear weapons. Such enabling should also be selective, capable of being addressed individually to small subsets of the entire arsenal; contingent, restricting use to authorized targets only; and reversible, so that weapons can be locked up again after once being unlocked.

No technological hurdles stand in the way of these objectives. Such controls will not only make the superpowers’ arsenals safer, but will serve as an example to other nations that come to possess nuclear weapons in coming decades. Though more restrictive controls need not be the subject of arms control agreements, some sharing of technical and procedural innovations among countries would be beneficial.

Avoiding breakout. The very first major strategic arms control treaty to follow the 1960 *Dædalus* volume, the 1972 Antiballistic Missile (ABM) Treaty, preoccupied itself with a problem that will grow more pressing as strategic arsenals are reduced in size and, perhaps, in variety. US negotiators of the ABM Treaty resolved that simply banning deployments of ABM systems (in excess of a 100-interceptor token maximum) would not protect US security adequately. They sought to write provisions into the treaty that would prohibit the Soviet Union from positioning itself to deploy an ABM system quickly. Accordingly, the ABM Treaty extends its prohibitions to the development and testing of ABM systems as well as their deployment, creating a lengthy “buffer” between the time a party decides to withdraw from the Treaty and the earliest time it could put into place a strategically meaningful ABM defense. The precise rules governing what types of development and testing activities are permitted and which are prohibited by the ABM Treaty have been a source of controversy since President Ronald Reagan launched the Strategic Defense Initiative. But the underlying idea that arms control

treaties need to contain buffers against rapid breakout and compromise of the treaty's stabilizing effect is unimpeachable.

The importance of the buffer concept will grow if arms control agreements are reached that "really matter." Consider, for example, a post-START agreement limiting US and Soviet ICBM and SLBM warheads to a total of 1,000 on a side, and further limiting flights of test missiles. Strict rules on development and testing of missile defenses will need to accompany this offensive agreement. Neither party would wish the other to be able to put into place within a short time a defense capable of intercepting as few as several hundred of its missile warheads. Responding to such a breakout deployment would entail rapid production of offensive missiles, which would be difficult if production lines were closed down in anticipation of an end to arms racing and rapid fielding of penetration aids, whose development would be retarded by the ban on missile flight tests.

In addition to a buffer against defensive breakout, buffers will be required against any form of offensive breakout that would threaten the survivability of a basing mode "protected" by the arms control agreement. If a side thought it was guaranteed survivability of silo-based missiles under the agreement, for example, it would need to limit the other side's capability to increase rapidly the number or warhead carriage of its missiles. The completed INF agreement and the draft START agreement, with their intrusive on-site inspection provisions, have begun setting limits on activities that precede deployment.

Targeting and minimum deterrence. Strategic weapons have always been aimed at three categories of targets: nuclear forces and their associated national political and military command and control, conventional forces and their associated field command and control, and war-supporting civil infrastructure like transportation, fuel, and weapons-manufacturing installations. The implicit goal of strategic arms control has been to eliminate the first category from the target lists. Counternuclear targeting has not been very promising for either side over the three decades since the 1960 *Dædalus* volume because the other side has always maintained a substantial arsenal that could not be destroyed through such targeting. In the United States presidents have consistently permitted strategic targeting to be done under "guidance" that assigns high priority to attack on Soviet

nuclear forces, while systematically depriving the military of the weapons to do the job and pursuing arms control agreements that have the express aim of making such targeting ineffective.

If strategic arsenals are consistently reduced over coming decades to levels approaching one-fourth their current size, there will come a point at which the dedication of "scarce" weapons to a manifestly ineffective attack on enemy strategic forces will seem impractical even to the targeting staffs. Counternuclear targeting will probably be eliminated from the "requirements" that specify how many nuclear weapons the military needs, and that, in part, justify the much larger size of today's strategic arsenals. The question, "How much is enough?" will then be answered by reference to the second and third target categories. A plausible recent estimate numbers the targets in these categories at about 2,000.⁶

Some advocate deeper cuts still, to a "minimum deterrent" of a few hundred warheads deliberately targeted in such a way as to punish an enemy by attacking his cities rather than to remove him as a military power by attacking his military forces. It is well known that minimum deterrence in this sense is morally objectionable. Such an arsenal can only invite violation of the strictures on proportionality and discrimination that Western thinkers long ago established to counter the natural temptation, having decided to resort to force, to use all the force at hand. The force used should be proportional to the stakes of the conflict, that is, to the good the conflict will do. And force should be applied in such a way as to spare innocent life. With nuclear weapons humankind came into such a lavish endowment of destructive power that the setting of limits became urgent.

Minimum deterrence heads in the other direction by removing nuclear weapons completely from any military context. It is less appreciated that minimum deterrence presents practical problems as well. Military organizations have resisted the minimum deterrence mission; they want to have missions they can believe in, missions that have military rather than terroristic objectives.

Once vulnerability is a solved problem and opposing nuclear forces are stricken from the targeting requirements, one of the more interesting themes of arms control will be the answer negotiators give to the question, "How much is enough?" and the degree of public support for a military deterrent as opposed to a much smaller, "minimum," psychological deterrent.

The problem of non-Soviet nuclear powers. So much of the intellectual buttressing of strategic arms control has been tailored to the US-Soviet Cold War nuclear competition that one can find very little guidance in the thinking of the past thirty years as to what is likely to be the most urgent problem of US arms control in thirty years: the engineering of stable deterrent relationships with non-Soviet nuclear powers. It is, for this discussion, not important which nations might be involved. They range from Libya to Japan. Nor is it necessarily the case that the United States will need to formalize its relationship through arms control with all nations that have the capability of strategic attack on it. The British and the French have long had such capability, and Americans have felt no need to regulate it.

There is, of course, the possibility that international action will forestall proliferation of nuclear weapons. The problem will come with nations that *do* obtain nuclear weapons and that clearly threaten strategic use against the US homeland. We can take it for granted that the United States, with its heavy investments in the technology of survivability, will make its arsenal resilient to attack by any group of nations. The problem will be *their* survivability. The United States and the Soviet Union went through an ugly period, from roughly the early 1950s until the early 1960s, when it was just plausible that by attacking first, one side could meaningfully limit the damage from the other's retaliation. Only when it became clear that the other side's retaliation could be blunted, but not eliminated, did it become palatable to settle for mutual vulnerability through arms control.

It seems likely that the United States will pass through a period in the future with most non-Soviet nuclear powers when it has the capability to mount an entirely or nearly disarming strike against them. These other nuclear powers, knowing of this American capability, might take the same dangerous steps the United States and the Soviet Union took to guarantee survivability of their deterrent forces: dispersed authority to launch, dangerous or provocative alerting procedures, short operational timelines, and so on. Since some of these nations might be quite hostile to the United States, and might have populations that relish their capability to do nuclear damage to this wealthy superpower, America will not willingly relinquish its first-strike advantage.

But at a certain point the United States will probably judge the dangers of threatening vulnerability to be greater than the dangers of conceding survivability to the nation concerned. At this point, it would be wise to enter into arms control agreements that increase the safety of a mutual hostage relationship that has become unavoidable.⁷

NONSTRATEGIC NUCLEAR WEAPONS: USABILITY AND UNUSABILITY

At the same time as the 1960 *Dædalus* issue went to press, another decade-long American effort on a different kind of control over nuclear weapons was reaching completion: a decade of weaving tactical nuclear weapons into the arsenals and operations plans of the military organizations. At the beginning of the decade, nuclear weapons had been viewed largely as a means of bringing devastation to the enemy homeland, eliminating the enemy's capacity and will to wage war rather than his forces on the battlefield—in short, as strategic weapons. During the 1950s American military organizations increasingly sought to bring nuclear weapons to bear on the front, not just in the rear. The objective of this intensive program of technological innovation was to make nuclear weapons usable for military purposes, meaning usable for purposes short of destroying the other side's society and inviting similar destruction of one's own society, for purposes more akin to the uses of conventional military force—in short, for “limited nuclear war.”

By the end of the 1950s nuclear weapons existed in a variety of yields and delivery modes. Their dimensions and weights were greatly reduced, and they incorporated safety and security features that allowed them to be deployed with ordinary military units. Accordingly, by the early 1960s they were in the day-to-day possession of nearly every branch of the armed services, despite a brief battle early in the decade for civilian (i.e., Atomic Energy Commission) “custody.” By various diplomatic agreements and “two-key” military agreements, US nuclear weapons were closely associated with allied forces, if not in their outright possession. Nuclear weapons had been designed to be delivered by aircraft, by artillery, by mortars, by torpedoes, by all sorts of rockets, and by teams of soldiers as “atomic demolition munitions.” This decade-long development was epitomized by the Davy Crockett, a shoulder-carried nuclear bazooka.

The efforts to make nuclear weapons “usable” in practical military circumstances occupied a substantial part of the effort of scientists working on nuclear weapons in the 1950s. The usability objective had been strongly favored by, among others, J. Robert Oppenheimer. Oppenheimer is well known for his opposition to the development of the “Super” hydrogen bomb. It is less well appreciated that Oppenheimer was a strong supporter of the tactical nuclear weapons program. The famous 1949 report of the General Advisory Committee of the Atomic Energy Commission, chaired by Oppenheimer, on whether to proceed with a crash program to develop the Super, contained the following paragraph:

TACTICAL DELIVERY. The General Advisory Committee recommends to the Commission an intensification of efforts to make atomic weapons available for tactical purposes, and to give attention to the problem of integration of bomb and carrier design in this field.⁸

To Oppenheimer the Super represented a major step forward for the posture of massive strategic use of nuclear weapons championed by General Curtis LeMay and Secretary of State John Foster Dulles, which he thought completely unusable for any morally justifiable military purpose. His opposition to this strain of thinking was as important in his 1949 opposition to a crash program to develop the Super as any technical doubts about the feasibility of thermonuclear explosives. In a letter to James B. Conant written shortly before the special meeting of the General Advisory Committee produced its famous report in opposition to the Super, Oppenheimer wrote: “What concerns me is really not the technical problem. . . . It [the Super] seems likely to me even further to worsen the unbalance of our war plans.”⁹ The unbalance to which Oppenheimer referred was the tendency to base American plans for nuclear use upon a massive strategic bombing campaign patterned on the World War II bombing of Japan and Germany rather than upon tactical engagements with enemy forces.

These two threads, the “usable” and “unusable,” in US operational planning have tensely coexisted ever since they were both brought to full realization in the operating commands, a process that was essentially complete by the time the *Dædalus* issue went to press. Neither thread ever clearly established itself as preeminent, let alone exclusive, in the ensuing thirty years. The result was, in a sense, the

worst of both worlds: the United States maintained a huge retaliatory force for strategic deterrence that few pretended could serve any military role except retaliation to massive attack. It also maintained the declared intent and some of the plans, procedures, and forces for tactical use of nuclear weapons, but with inadequate emphasis on achieving true battlefield advantage through nuclear use, limiting collateral damage to morally and politically acceptable levels, or terminating nuclear hostilities before they could escalate beyond any reasonable bounds of war—emphases that would logically need to go with tactical intent. The usable and unusable forces were in fact linked in the European theater by a deliberately and carefully maintained powder train designed to make it all too likely that employment of nuclear weapons for “limited” purposes would be incompetent, inconclusive, and uncontrolled; they would ultimately provoke a much larger unleashing of the unusable strategic arsenal.

The result of the dispute between advocates and foes of limited nuclear use has been the kind of compromise found frequently in American political life. The United States never really deployed the kinds of nuclear weapons, or made the kinds of operations plans, that would have rendered tactical use efficacious or safe in the standard scenarios of major conventional war in Europe, Korea, or the Middle East. But neither did it renounce tactical use. This compromise is likely to grow more awkward in coming years because the changes affecting nonstrategic forces are even more dramatic than those affecting strategic forces.

It is likely that in ten years time, if current trends persist, the only US nuclear weapons deployed outside national territory will be carried by submarine-launched ballistic missiles and, possibly, submarine-launched cruise missiles, carrier-based aircraft, and NATO tactical aircraft. All other nonstrategic nuclear weapons will be eliminated or withdrawn to US territory through a mixture of unilateral military decisions, international political pressures (especially in Europe), and arms control. The trend, in short, is toward undoing the integration of nuclear and conventional forces avidly pursued in the 1950s and half-heartedly maintained ever since.

The United States will need to decide what the remaining nonstrategic weapons are for, to give the military guidance about how they should plan to use them, and to decide what arms control principles ought to apply to them. In the most superficial sense, nuclear

weapons would seem to be a convenient adjunct to conventional military forces. A single nuclear weapon can destroy a bridge, a field, radar, ship, compact armored formation, command center, or munitions factory a quarter of the globe away in half an hour at a very reasonable cost. The difficulties with limited nuclear use are fourfold.

The first problem is that nuclear weapons tend to destroy everything around the target as well as the target itself. Outside of the Cold War context of major superpower war in Europe, the moral and political hazards of using so much force at once are forbidding. A nuclear force attempting to take limited usability seriously would have to select targets whose military value was high, but which were not in populous areas; to draw up operations plans that obtained decisive military results with very few weapons; to deploy low-yield weapons with "clean" nuclear designs to minimize fallout; to fuse for high airburst over area targets; and perhaps to develop earth penetrating warheads for point targets. A tactical nuclear force would have to show that, operating under these constraints, it could still produce better battlefield outcomes at less cost than conventional forces.

The second problem with using nuclear weapons for military purposes is that the other side might have them too. The other side might respond with, let us say for the moment, an equal number of their nuclear weapons on a target set comparable to ours. Now the questions are: Did anyone profit militarily from this exchange? Was the result asymmetrical? One can ask the same of chemical weapons of course, and even of conventional weapons. Neither side used chemical weapons in World War II because neither could see how the ensuing chemical exchange would do more harm to the opposing side than to themselves.

The third problem with limited nuclear use is that it might escalate to much larger strategic use, so large that the ensuing destruction would be out of proportion to the original conflict. A usable arsenal would, accordingly, need command and control systems that strictly limited the latitude of the troops using nuclear weapons through, for example, Permissive Action Links and other devices for controlling use. The side initiating supposedly limited use would furthermore need to make clear to the enemy the purposes for its nuclear strike, the limitations it placed upon itself, and its plans to terminate nuclear hostilities after achieving its military objectives.

The fourth and final problem with having the United States or anyone else use, or even maintain forces with the open intent to use nuclear weapons for tactical purposes is the likelihood that it would erode the forty-five-year taboo on nuclear use. Scholars argue about whether nuclear weapons have prevented a world war since 1945, and about whether the avoidance of nuclear war in particular has been advanced by this or that type of weapon deployment. These arguments can never be resolved. But the fact remains that, for whatever reason, the tens of thousands of nuclear weapons in existence over several decades since 1945 have never been used, not one of them. And this fact alone probably constitutes a bulwark against nuclear use, a bulwark that has nothing to do with the intricacies of deterrence but instead with habits of mind and moral norms built up over a generation. The next user of nuclear weapons in anger would attract the opprobrium of the whole world and would bear responsibility for any subsequent wider weakening of the taboo on nuclear use. For the United States, surely no limited military objective would be worth that price.

The logic that should govern US nonstrategic nuclear forces is now clear. One should first try to identify scenarios of nuclear use in the service of military objectives in the new Europe, the Persian Gulf, Korea, or elsewhere that satisfy the first three criteria. It is far from obvious that such scenarios exist. If they do, they likely do not require nuclear weapons to be stored outside of the United States in an immediately ready condition, where they are subject to terrorism, seizure by "host" nations, or "use 'em or lose 'em" pressures on local commanders. Instead, all nonstrategic nuclear weapons can be withdrawn to the United States. This nonstrategic nuclear force should furthermore be entrusted to a special "expeditionary force" that, like the special forces, is organizationally segregated from the conventional and the strategic nuclear forces to emphasize its entirely different purposes and to avoid the dangerous ambiguity with which nonstrategic forces have been treated in the past. Technically, the nonstrategic nuclear weapons should be designed to move rapidly, to minimize collateral damage insofar as possible, and to operate under extremely strict command and control from Washington. To fall short in meeting the first three criteria is to create a dangerous illusion of usability.

This is the picture of future US nonstrategic nuclear weapons that emerges from applying the first three criteria. If this picture seems implausible, then the fourth criterion overwhelmingly recommends a very different course. That course is the elimination of nonstrategic nuclear weapons and the explicit renunciation of nuclear use for any other purpose than retaliation to nuclear attack upon the US Homeland. In this course arms control for nonstrategic nuclear weapons ought to focus on the simple goal of eliminating them rather than rebasing them, restructuring them, or limiting their numbers.

* * *

A colleague and mentor who is always very wise in these matters used to propose the following definition of nuclear stability. In an idle moment one future day the president of the United States asks the secretary of defense how many nuclear weapons the United States has of a certain type. The secretary of defense replies that he has never had occasion to learn the answer, but he will find out. He phones a few senior aides at the Pentagon. None of them knows even approximately how large the arsenal is, but they promise the secretary a prompt answer. The president's question is passed to a lower level of aides, where once again no one can answer it. The secretary of defense's embarrassment grows as the minutes tick by. Eventually someone in the bowels of the Pentagon or at a base somewhere is found who knows. Up the hierarchy of aides, all puzzled by this arcane inquiry, the answer is passed. After an hour or so the president gets his answer. *That*, said my colleague, is stability.

There is something to be said for this picture of stability. The apparent end of the Cold War unquestionably makes less urgent the kind of attention to engineering details of the nuclear forces—numbers and types of weapons systems—that has characterized arms control in the thirty years since the *Dædalus* issue. It is a welcome development if military confrontation, and with it arms control, assume a more modest place in international political life.

But the end of the Cold War also leaves the United States and the Soviet Union in possession of several tens of thousands of nuclear weapons. These are simply too dangerous to forget. It would be particularly inexcusable to cease the effort to shape these arsenals cooperatively at the very moment when their proper purposes must

necessarily be changing radically, and when they should be logically changing too. It would also be inexcusable to neglect arms control at the very moment when the political atmosphere permits important steps toward safety to be taken. To do anything else would show too little respect for this powerfully destructive technology.

ENDNOTES

¹In practice, of course, two other principles have been active, namely, that there ought to be rough equality or "parity" of the superpower arsenals, and that the overall number of nuclear weapons ought to be reduced. But parity is more in the nature of a political constraint on arms control than an objective in itself, and reductions for their own sake, while perhaps having an intuitive wisdom, are regarded as lacking a rigorous link to stability.

²Where qualitative rather than quantitative changes in the threat might make the crucial difference in the survivability of a basing mode (as with, for example, locating submarines or mobile missiles so they can be efficiently targeted) we shall simply assume that some combination of basing technology and arms control will ensure survivability. This is a big assumption, and one that cannot really be justified, since thirty years is much too far into the future to make predictions in the field of target acquisition technology.

³The pioneering studies in command and control vulnerability are John D. Steinbruner, "National Security and the Concept of Strategic Stability," *Journal of Conflict Resolution* 22 (September 1978): 411-428; and Steinbruner, "Nuclear Decapitation," *Foreign Policy* 45 (Winter 1981-1982): 16-28.

⁴See Ashton B. Carter, "Assessing Command System Vulnerability" in Ashton B. Carter, John D. Steinbruner, and Charles A. Zraket, eds., *Managing Nuclear Operations* (Washington, D.C.: The Brookings Institution, 1987), chap. 17.

⁵It has long been true that only groups of military personnel, and not individuals, have been physically able to use nuclear weapons. Group use involves various collective actions, voting schemes, and possibilities for vetoes.

⁶Michael M. May, George F. Bing, and John D. Steinbruner, *Strategic Arms Reduction* (Washington, D.C.: The Brookings Institution, 1988).

⁷An alternative to conceding vulnerability (besides preventively attacking the offending nation before it had completed its nuclear deployments) is the erection of near-perfect continental defenses against missile, air, and seacoast delivery of nuclear weapons to the United States. This alternative, however, does not look promising technologically.

⁸Herbert F. York, *The Advisors: Oppenheimer, Teller, and the Superbomb* (Stanford University Press, 1976), Appendix II, 155.

⁹*Ibid.*, 55.

The need for supranational organizations is most obvious when we try to find ways by which to avoid war. But it is not only through common dangers that we are closely tied to our neighbors. Big-scale enterprises like the exploitation of atomic energy, the prediction and the eventual modification of weather, the study and cultivation of the oceans are all undertakings which are best carried forward on an international scale. It is hardly possible to do otherwise.

These positive undertakings can most easily furnish the first steps toward peace. Work toward a mutually desirable aim brings about the type of collaboration whereby no secrecy or suspicion can arise. Work along such lines can lay the foundation of friendships, and success will give the feeling of a common accomplishment on which future extended cooperation can be based.

Edward Teller

From "The Feasibility of Arms Control and the Principle
of Openness"

Dædalus, Fall 1960: page 798

The American Approach to Nuclear Arms Control: A Retrospective

INTRODUCTION

THE CONSENSUS SUPPORTING United States defense policy for almost forty years has become irrelevant. The advocacy of Communist containment not only seems dated, it sounds silly. The Soviet Union and the United States have collaborated in a number of important areas, not only seeking a peaceful settlement in the Persian Gulf and in reducing conventional forces in Europe but in preserving the domestic unity and economic stability of the Soviet Union itself. Confidence in international institutions is high and the fad is to declare the most pressing threats to be environmental and economic, not Communist. Nation-states are preoccupied less with alliance building and outreach than with self-determination. Indeed, Germany is reunified—an achievement most American analysts had long discounted as unrealistic. Democratic systems are being born in Eastern Europe, tested in Africa and in Latin America. Applauding the end of strategic nuclear confrontation, some analysts predict these years will be christened the post-Cold War, new democratic, or postnuclear age.

Yet, historians of the future may well place the Persian Gulf crisis of 1990 at the leading edge of a new, far more dangerous era. Iraq's aggression against its neighbor may come to be seen as less the aberrant act of a pariah state than the first challenge of a more complex, fluid, and unstable period. Western diplomats, congratu-

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lating themselves over ideological victories and the prospects for democracy in Europe, may be scolded for missing the import of instabilities in Southeast Asia, particularly the dismissal of a democratically elected government and the threshold of a nuclear arms race between Pakistan and India. History books may follow the chapter on Europe's new peace with ones on China's nuclear and ballistic missile export policies, Israel's arsenal development, and the Soviet Union's nuclear dilemma as it struggles against disintegration and civil war.

Despite juxtaposed visions of democratic peace and frightful instability, nuclear obsession remains with us. This fact is no more clearly demonstrated than in the call for Europe to embrace the concept of continued nuclear deterrence. The physical presence of these systems alone, *The Economist* has asserted, is required to ensure the stability of a new order—regardless of the threats which might arise.

Thus, even in this remarkable new age, the question raised by scholars such as John Lewis Gaddis and John Mueller presses itself on the policy community: Have nuclear weapons helped to keep the peace or have they been irrelevant to it?¹ Three related questions are no less important: If nuclear weapons have mattered, just how important has the balance of their distributions and capabilities been? Do limits on conventional or nuclear capabilities have anything to do with the likelihood of nuclear war? If arms control was beneficial in ensuring strategic stability during the Cold War, what lessons might be applied to the new era at hand?

Consensus in the past served to make the first question moot. When bipolar antagonism was palpable and America was relatively rich, the safe course was arming to parley; negotiated stability and nuclear deployments could be pursued simultaneously. This fundamental point was, after all, what cinched the American arms control community's preeminence in the early 1960s. Arms controllers' advocacy of both nuclear restraint and redundant nuclear arsenals was bound to be popular at a time when the Soviet threat loomed large, allies wanted nuclear status, the American military services were competing for nuclear shares, and the public was pressing for a test ban.

In the 1990s the political bond for that consensus on arms control is dissolving. The security community is divided between those who

ascribe the absence of nuclear war to an artfully managed if costly nuclear stalemate, and those who, having impatiently acquiesced to the arms control community's pursuit of "first steps to disarmament" in the past, now wish to proceed rapidly through the last steps in the name of peace and economy. In this context a retrospective look at arms control thought is indeed more than idle curiosity; it is a prerequisite for balanced, integrated policy. After all, the leap of 1989–1990 may not have been from the Cold War alone; it may also have been from the Long Peace.²

It makes sense, then, to begin with the arms control approach identified in Cambridge during the late 1950s and early 1960s. By discussing the evolution of what I have called elsewhere the "Cambridge approach" to arms control, it will be possible to think clearly about the usefulness of our classical arms control concepts.³ Such a historical review will help to distinguish the problems which inhered in the theory from those which arose from its implementation. When measuring the worth of arms control one must not carelessly ascribe to theories the failures of policy makers or fail to distinguish between theories over time. Arms control thought existed before the *Dædalus* volume or Summer Study of 1960—indeed this "prehistory" set the framework within which the new thinking would expand.

THE CAMBRIDGE APPROACH TO ARMS CONTROL

The writings on arms control which were published in the period from 1958 to 1966 are often considered the sources of modern thinking on the subject. Many of these works fed or grew out of the Harvard-Massachusetts Institute of Technology faculty seminars on the subject during this period and the arms control discussions organized by the American Academy of Arts and Sciences (AAAS) in 1960. One of these conferences produced the *Dædalus* volume, which has been referred to as the "bible" of arms control. The second discussion group, the Summer Study on Arms Control, produced an edited volume of notes and papers that may best capture the consensual views of the participants.⁴ From these papers and transcripts it is possible to distill several key elements of an approach, if not a rigorously framed theory of nuclear arms control.

The Cambridge theorists did not all agree on priorities, but certain basic concepts were shared. The most important objective for the

Cambridge arms controllers was the prevention of nuclear war, the horrific effects of which had been amply demonstrated in Hiroshima and Nagasaki and in subsequent thermonuclear tests of the 1950s. The Cambridge arms controllers identified three requirements for nuclear stability in 1960: preserving a stigma against nuclear use through maintenance of a high threshold between conventional and nuclear weapons; the creation and preservation of redundant and survivable strategic nuclear systems in the Soviet Union and the United States; and prevention of the spread of nuclear weapons to other states.

Preserving the Stigma: The Threshold and Firebreak

In one of the papers presented to the Summer Study in 1960 Arthur Barber wrote, "The NATO adoption of a strategy based upon nuclear weapons will remain one of the most serious strategic blunders of modern times . . . NATO's weapons, logistics, and communications are inconsistent with the destructiveness of atomic war."⁵ In Barber's view, and in the opinion of many of the Summer Study participants, Western conventional deployments in Europe had to be increased in order to provide extended deterrence, to reduce the likelihood of nuclear war, and to forestall the acquisition of nuclear weapons by other states—particularly Germany. The concept of nuclear sharing was dangerous since it would inevitably entangle US nuclear capabilities in a web of intraalliance politics and controls that ultimately would reduce the credibility of first use and increase the chances of accidental war.

The concept of the threshold itself was hardly new. Recognition of the revolutionary quality and "specialness" of nuclear weapons grew out of the spectacular wartime use of the bomb, the subsequent American conventional demobilization, the correspondingly exaggerated reliance on nuclear defenses, and the preoccupation with American nuclear monopoly, which began within the international scientific community even before the new weapon's first use. The counterpart to Washington's near total reliance on nuclear monopoly for defense was its near total reliance on multilateral nuclear disarmament and intrusive inspection ("openness") in Soviet-American negotiations. The 1940s and early 1950s were the years of a "political" arms control: disarmament, as an adjunct of foreign policy, was largely used to test Soviet willingness to open up its

society to inspection and thus to score propaganda points at home and abroad.

Gradually however, the concept of the conventional-nuclear threshold and the importance of raising it as a policy objective took hold in strategic theory and in nuclear arms control thought.⁶ In the 1940s it had seemed as if the deterrent efficacy and, from the disarmers' perspective, the military disutility of the atomic bomb was integral to the device. Combined with our nuclear monopoly, such an assumption made the notion of fine-tuning nuclear weapons policy for the purpose of avoiding nuclear war both impractical and uninteresting. But by the 1950s the Soviets had demonstrated their capability to compete technologically. Atomic warheads were becoming rapidly adapted to conventional delivery technologies, were deployed in Europe on 280mm guns and short-range missiles, and were integrated into NATO war plans.⁷ With the nuclearization of NATO, the absorption of a nonnuclear Germany into its structure, and the emergence of French, British, and Chinese interests in independent nuclear capabilities, finer distinctions in nuclear policy, both with respect to controls and potential use, had to be considered.⁸

Thus, arms controllers and military planners began to consider distinctions between conventional and nuclear weapons by seeking to establish and maintain a conventional-nuclear threshold even as technological advances and military deployments in Europe worked to blur the boundary between the two. Some analysts in the strategic community, such as Robert E. Osgood and William Kaufmann, argued for maintaining the threshold as they unfolded their critiques of the Eisenhower administration's policy of massive retaliation and limited nuclear war.⁹ To them it seemed extremely important to have a capability to respond to provocations short of nuclear engagement.

The natural implication of thinking along these lines was that defense policy ought to embrace notions of restraint—what technologies, deployments or types of employment were not in our interests to pursue or to have our chief adversary pursue. Not only did arms control move from a multilateral orientation (the Baruch Plan) to a bilateralist one (Open Skies, the CTB and Summit diplomacy) but arms control ideas became increasingly detached from the political fortunes of the Cold War to become wedded to strategy more generally. Interest in the possibilities of arms control spilled from

United Nations' agendas and appeals of the disarmers to the papers and councils of the strategic analysts in government and its associated think tanks such as RAND.¹⁰ As early as 1953 the Oppenheimer Panel, created by Truman to consider prospects for disarmament, began to suggest that arms control should be less a counterweight to defense policy than an integral part of it.¹¹ The idea was that we should be less concerned with scoring political points through advocacy of radical measures of control than with managing a complex relationship of forces between two adversarial alliances. By the end of the 1950s arms control was, at least in analytical circles outside of government, becoming something quite distinct from disarmament.¹²

Of course, as the 1950s progressed and the Soviets kept pace with our technological advances, questions of stability became most pressing. The attempt to resolve these questions not only characterized arms control thought for the next several decades, it also based strategic considerations toward reducing the risks of war as opposed to prevailing in any international test of wills. International politics was not so much ignored as assumed to be a constant.

Redundancy and Survivability

Reflecting the then current preoccupation with preemptive war, arms control theorists in 1960 agreed on the basic requirement for crisis stability: essential strategic parity based on a force exchange ratio greater than 1. As Dalimil Kybal put it: "the critical parameter in counterforce exchanges is the ratio R of the number of weapons expended by a force to the number of weapons killed."¹³ Parity in numbers was not of critical import; more so was the parity that ensured that both sides could inflict adequate damage in a second strike. If an attacker believed he could eliminate more of his victim's nuclear systems than he himself would have to expend, he would have an incentive to strike first in a crisis. If both sides had such a capability, there would be a tremendous incentive to preempt; a nuclear war no one wanted could be the result of rational calculation. On the basis of such calculations, the Cambridge group suggested that nuclear supremacy be denied either side; some even suggested that each side should ensure the second-strike capability of the other.

In 1960 the key determinant of the force exchange ratio seemed to be the vulnerability of delivery systems, though Thomas Schelling

raised the point that it might also depend on the number of warheads on a ballistic missile or the number of missiles housed in any one silo.¹⁴ Most of the theorists concerned with arms control were highly conscious of the instabilities arising from the vulnerability of bombers (a point which had recently been made in the basing study produced at RAND by Albert Wohlstetter) and of liquid-fueled IRBMs then being deployed in Europe. The logical conclusion was to advocate the development of redundant, invulnerable systems—primarily ballistic missiles deployed on submarines (Polaris).¹⁵ Redundant basing modes would ensure that technological breakthroughs would not suddenly make the arsenal impotent or vulnerable; this in turn would permit lower total numbers on both sides.¹⁶ The Cambridge analysts discussed an adequate minimal deterrent on the order of two hundred ballistic missiles with explosive power significantly less than one-half “beach” or 500 kmts (one “beach” referred to the amount of atomic yield necessary to wipe out civilization on earth as depicted in Neville Chute’s book *On The Beach* and the popular movie which was subsequently based on it).¹⁷

Nonproliferation

Obviously, calculations of the weapons exchange ratio and the size of the minimum deterrent depended on the assumption of a bipolar system. The more nuclear powers there were, the more complicated the force exchange ratios would be. Calculations of parity would have to take into consideration the impact of alliances on commitments and targeting. Beyond that, a multipolar nuclear system might embrace states that were dissatisfied with minor aspects of the political status quo and might therefore be willing to take greater risks than would the superpowers. Such complications convinced the Cambridge theorists to oppose proliferation of nuclear capabilities to other states—even allies.

THE REVOLUTION OF 1960

What was strikingly new about the Cambridge theorists’ analysis? It was not their argument for parity in capabilities, though this was powerfully presented. The first American atomic control plan, the Acheson-Lilienthal Report of 1946, was as much a control measure designed to reduce the likelihood of surprise attack as it was a

disarmament agreement—particularly given the effective lack of a US nuclear arsenal at the time. Calculating incentives for war during a time when possession of nuclear production facilities was equivalent to potential nuclear advantage, the Acheson-Lilienthal panel argued for a rudimentary kind of nuclear balance—equitable distribution of internationalized facilities among states. All facilities would be manned by an international civil service and would be equally vulnerable. Nationalization of nuclear facilities for the purpose of gaining military advantage by one state could bring the nationalization of others in retaliation.¹⁸

There was also nothing new in the Cambridge theorists' arguments for a limited, bilateral approach which accepted the political status quo as a given. This case was made as early as 1945 by Robert Oppenheimer and Henry Stimson when others were beginning to weigh the leverage that nuclear monopoly might provide when consolidating the postwar order. Even after the Cold War had begun William T. R. Fox argued for the kind of "middle-run" planning in the arms policy field which might identify modest objectives short of political victory.¹⁹ He argued that limited measures could be based on tacit acceptance of the political status quo.

The Cambridge theorists were also not the first to stress the value of ensuring invulnerable second-strike weapons for both sides. This startling prescription for nuclear peace was made by a ballistic missile builder for Convair who had been urged, along with his colleagues, to develop counterarguments to the nuclear test ban. To prevent a halt to warhead miniaturization which such a ban might entail, Warren Amster developed the first clear argument for the stabilizing effects of ballistic missile technology: a sophisticated model for mutual assured destruction.²⁰ His paper was noted by C. W. Sherwin and advertised in Sherwin's article, "Securing Peace Through Military Technology" published in a special issue of the *Bulletin of the Atomic Scientists*²¹ and later footnoted by Schelling as one of the earliest innovative analyses of the problem.²² It seemed to Amster, Sherwin, Schelling, and those to follow that one of the more useful purposes of arms control would be to channel the development of military technology into stabilizing developments on both sides.

Of course, Schelling did go on to elaborate the importance of basing modes and targeting plans to the reduction of damage should deterrence fail.²³ He was one of those who urged the new arms

control theorists to consider “no cities” targeting and the advantages of putting second-strike forces at sea where search and destroy missions could involve nonnuclear technologies, and nuclear use would have minimum impact on population centers. However, it is probably fair to say that the avoidance of war remained the single most important preoccupation of the arms control theorists in 1960.

If the Cambridge theorists were not the first to design stability scenarios based on minimum deterrents and redundant second-strike arsenals, they were among the first explicitly to associate arms control processes with the achievement of such designs. The process would incorporate strategic moves as understood in the theory of non-zero-sum games—“the strategy of action where conflict is mixed with mutual dependence.”²⁴ Such games demonstrated the importance of information sharing for the recognition and pursuit of mutual interests.²⁵ Verification of compliance took on positive functions and began to be evaluated in this light. In the 1960s arms control theorists emphasized communication, tacit bargaining, and centralized command and control for the avoidance of nuclear war. Given that the basis for all these prescriptions was an unwavering allegiance to the political status quo, the mix was startlingly new.

Command, Control, and Communications

The Cambridge arms control theorists reasoned that if certain technologies and deployment modes were stabilizing, each side had an interest in communicating recognition of this to the other through negotiation (preferably bilateral) and demonstrations of conditional self-restraint. Though the process of informing the adversary would involve such nonverbal aspects as the observation of precedent and the demonstrated observance of certain limits, it would also be useful to teach the adversary about one’s own conception of the ideal end-state. This might be accomplished through negotiations, although such a process would not be easy as there was a good chance arsenals would not appear commensurate, even if their capabilities were balanced.

Schelling made these points during part of the AAAS Summer Study proceedings. He went on to note that:

... when you get down to negotiations on force levels, you would actually make inventories commensurable on both sides. You may have

such a complicated analysis that the heads of government and the negotiators would not understand it. Therefore it may be better to try to communicate with the enemy and to let each side find its own level. Had we thought in the past ten years of having only stabilizing retaliation we might have moved down to extremely low levels compared to what the Air Force likes to think of as deliverable megatonnage in the period 1965–1970.²⁶

In the end, then, both sides would reach a plateau of commensurate but not necessarily symmetrical arsenals. It was hoped that in the long term, nuclear forces could be neutralized: they would become so unprofitable to use that they would eventually become irrelevant. Lack of use, together with mutual agreement to halt further testing of new types of warheads would lead to the ossification of both sides' arsenals. Once neutralization and obsolescence became the nuclear norm, perhaps significant weapons reductions could begin without jeopardizing stability.²⁷

The Cambridge theorists generally recognized that a strategic standoff would increase the likelihood of local war. Yet institutionalized strategic stability, including the maintenance of open channels of communication, could also reinforce the perceptions of limits and thresholds by setting a strong precedent and by making clear the mutually disadvantageous consequences of a breach. Strategic stability was not, therefore, believed to be necessarily inconsistent with enhanced capabilities for war termination and damage control:

The process of limiting war requires either explicit or tacit bargaining, and arms understandings reached before a war may facilitate this process. Prewar arrangements might simply involve a US-Soviet discussion—formal or, more likely, very informal—of the nature of limited war. Such a communication of views might help to make it clear to each side that the other accepted the notion of the limited use of force in the nuclear-missile age.²⁸

To maintain such limits and clarity, however, would require strict limits on the numbers of players to reduce the likelihood of "noise" in the strategic environment. As mentioned earlier, the Cambridge theorists believed that nonproliferation of nuclear capabilities was important for maintaining stability. This belief in the importance of

limiting nuclear decision makers led to emphasis on centralized control of national arsenals as well.

Comparative Risk

If the scenario of tacit bargaining, bilateral diplomacy, and high-level seminars suggests a certain intimacy between the two major global powers, this was the intent. While the inevitable military confrontation played itself out, arms control would serve to moderate and channel it in the expectation that the Soviet Union would eventually change.

This shift in arms control purposes, from political testing and probing of the Baruch and Eisenhower years to the technical discussions and mutual reassurances prescribed by the 1960s, was mirrored in attitudes toward verification. By the early 1950s official calls for intrusive measures to monitor compliance were beginning to give way to academic analyses which were measuring the risks of agreement in more comparative terms.²⁹ This new approach to verification was readily absorbed and elaborated by the Cambridge theorists: Would the state face a greater risk entering into the accord or letting the competition go unrestrained? More precisely, would the risks of undetectable circumvention (that is, unverifiable illegal action) outweigh the benefits of those restraints that could be adequately monitored?

The risk of undetectable cheating would depend on (1) the adversary's calculation of the chance such cheating might lead to a unilateral breakthrough and (2) the adversary's willingness to jeopardize the developing web of controls and restraints to take that chance through illegal, covert action. The first suggests the importance of ensuring the legality of vigorous research in technologies constrained by agreement. The second seems more a function of time: both sides' stake in maintaining communications and the status quo should drastically lower the risks of abrogation. It might even be hoped that willingness to demonstrate pacific intent through openness would increase on both sides.

In this long-term sense the Cambridge approach was a world order policy of the liberal American political tradition, fully compatible with—indeed complementary to—the general policy of containment. It sought not to change the sovereign state system but to open it for the continued pursuit of American interests overseas and for the

preservation of American democratic institutions at home. Unlike the disarmament schemes of the 1950s, the Cambridge approach sought openness as a by-product of military restraint. Its theorists did not propose arms control measures as litmus tests for democracy or as propaganda devices. In fact, despite the wedding of arms control to military planning and its technical emphasis, the Cambridge approach was threaded with a critical, if often unspoken political judgment: an endorsement of the international status quo. The Cambridge theorists assumed that Moscow also had no interest in risking nuclear war in order to bring about drastic change in Europe or Asia.

NET ASSESSMENTS

The Cambridge theorists had developed a powerful theoretical framework for arms control which was soon enlivening university campuses. Many of the elements of the approach had occurred to analysts earlier, but the whole had not been assembled before the 1960 Cambridge seminars and study groups. The approach caught on like wildfire; its interdisciplinary, behaviorist orientation was rich matter for intellectual debate. The rigor and sophistication of the analysis also appealed to individuals within the government—particularly in Robert McNamara's Defense Department.

Yet as early as the mid-1960s some of the analysts who had once been supportive of the arms control theory began to grow skeptical. Some disarmers became increasingly concerned that a stability based on holding populations hostage might be ethically and morally insupportable.

Perhaps the most persistent critique of the new arms control theory was that it emphasized a technological approach to what might best be considered a fundamentally political task: the avoidance of nuclear war. Donald Brennan, who had edited the original *Dædalus* volume on arms control, had come to believe by 1964 that the Soviets were culturally incapable of understanding a scenario for stability based on denial of active defenses. The "defense" school of arms control became active in the mid-1960s, fully engaging in the ABM Treaty debate of the late 1960s and early 1970s. These advocates of nuclear defenses argued that bilateralist assumptions and denial of defensive capabilities were naive in a world of resurgent nationalisms.

Some of these critics, particularly those favoring civil defense and ABMs, saw less political naïveté than myopia. They believed that the Pentagon had become so preoccupied with assured destruction that the United States' targeting and force-acquisition plans had become skewed. In their view the Warsaw Pact was gaining strategic and tactical advantages that could bring returns not only in battle but in peacetime diplomacy.

Whether the arms control theory developed in Cambridge during the late 1950s and early 1960s influenced McNamara's embrace of assured destruction or significantly affected decisions regarding subsequent force acquisitions, deployments, or proposals for control, would require analysis well beyond the scope of this paper. But if persistent critiques are any measure, there is abundant evidence that the influence was strong. The SALT II ratification debate was clearly informed by a pervasive assumption that an arms control "ethic" existed in McNamara's department and that it subsequently affected the outlook of government bureaucrats negotiating the Strategic Arms Limitation Talks (SALT). Attacking from another angle, frustrated disarmers have noted that the modern theory of arms limitation has not led to a reduction in armaments but to a proliferation of them in both sides' arsenals. Critics have repeatedly cited the sparse number of agreements reached and their lack of significant impact on the security environment.

Yet the criticism of the Cambridge approach to arms control involved more than simple objections to its embrace of a particular model of deterrence. In one of the more powerful and biting critiques of the 1970s, Edward Luttwak chastised the arms control community for believing that a framework for stability could be taught to the Soviets such that it would serve as a credible policy guide for both sides.³⁰ Such liberal optimism was blamed for the loss of American strategic superiority and its corollary: the failure to constrain new Soviet strategic capabilities. Richard Burt (who became the START negotiator at the beginning of the Bush administration) argued in the late 1970s that the excessively complex and disjointed negotiations were becoming ends in themselves, draining the grand strategy of its coherence and sweep. Arms control forums had segmented our thinking about Western defenses by focusing public attention on artificially separated weapons clusters. All the critics seemed to share the belief that arms controllers—and those defense analysts they

nurtured—had become too technological in their orientation, pessimistic in their attitude toward innovation, and optimistic about the role of reason in negotiations.

What do we make of these critiques? Are they deserved? If problems have existed, have they inhered in the theory that the Cambridge theorists developed or in the policies that the theory suggested but hardly prescribed? What do the successes and failures suggest about the hardness of the theory in present times?

It is, of course, important to distinguish flaws in the theory from problems with the theory's implementation. Since a complete assessment is beyond the scope of this essay, we will focus on assessing the theory and not its application which, in any case, has been effectively accomplished elsewhere.

Perhaps the most glaring problem with the theory was its failure to reconcile prescriptions for stability with those for damage limitation and war termination. Signaling pacific intent at the strategic level is difficult if one is also preparing the kinds of forces that could carry out a discriminating, "no cities" doctrine should deterrence fail. To the extent that the theory advocated such a capability, as it certainly did in Schelling's work, it was internally inconsistent and confusing therefore in practice. Would the adversary be more likely to believe a state's declaratory policies or its arsenals, deployments, and targeting doctrines when attempting to derive its intentions from its actions? Implicit too was the notion that the Soviets would be watching and caring about what the West did or chose not to do; that the US would be the trendsetter, delimiting the parameters of the competition. Although this was a reasonable premise in the 1950s, when the United States was setting the pace, and in the early 1960s when the United States still could claim technological superiority, it became less so in the late 1960s and 1970s.

The second major problem with the theory was its lack of attention to the domestic political prerequisites for sound government policy. Sophistication in the design of the instruments of arms control was not balanced by an equally sophisticated approach for ensuring their political workability. For example, the drive to perfect technology through vigorous research and development programs was appreciated by the Cambridge theorists in their pragmatic approach to verification. Conducting research in constrained or "destabilizing" technologies such as ABMs (antiballistic missiles), MIRVs (multiple

independently targetable reentry vehicles), or miniature “special effects” warheads, would allow each side to deter a treaty breakout. But little account was taken of the need in a democracy to have a solid rationale for military expenditures. As rationales develop, they often gain a life of their own, building momentum for potentially destabilizing innovations. In short, hedges against treaty breakout are bound, in the real world, to become the systems which we “must have” to maintain our edge or even to compete. As appeals are made to Congress for a burgeoning defense budget, signals may be sent to the adversary that are far more powerful than the “quiet communication” implied by the array of our strategic systems in professed support of the “second strike,” nonprovocative objectives of assured destruction.

Third, ideas regarding communication and tacit bargaining over thresholds and limits should deterrence fail were insightful and theoretically seductive but perhaps also impractical. The problem was less in the presumption of rational actors on both sides of the bargaining than in the expected clarity of exchanges and the discreteness of the “game” of strategic maneuvering in a limited war. Vietnam seemed to show that limits in war or even in peace may be harder to discern than theory would suggest. Indeed, Donald Brennan, asked what caused the community of Cambridge arms controllers to split in the 1960s, simply and swiftly replied “Vietnam.”³¹

Fourth, and probably most important, the theorists were unable to reconcile their preferences for intimate bilateral exchanges, limited nuclear access, and nonproliferation objectives with the requirements of extended deterrence—particularly in Europe. The issue of extended deterrence was a knotty one: How could centralized command and control be maintained if leaving nuclear weapons in Europe meant diversified access but removing them would provoke Europeans to develop their own? How could the United States credibly deter nuclear war without threatening early use of nuclear weapons but then avoid nuclear war should deterrence fail?³² In short, Art Barber seemed right: the policies of the 1950s inspired the concepts of the Cambridge approach while preempting their capabilities for success—at least in Europe.

Yet none of these critiques necessarily condemn the approach or its relevance for the future. If we assume that US policies were informed by the general principles of the Cambridge approach between 1960

and 1980, we must first ask if success was achieved according to the standards set by the theory and not by any other measure. We must look, therefore, not at the number of agreements signed or the relative size of arsenals, but the sense one has of the stability of the system overall. Are we more secure or less so? Did arrangements inspired by the logic of the theory contribute to or detract from the robustness of deterrence?

An impressionistic answer would probably be that they did—but largely at the margins. The introduction of permissive action links in the 1960s, the Hot Line agreement, the eschewing of defenses, the Nonproliferation Treaty, all helped assuage concerns about pre-emptive attack. Credible arguments have been made that we did succeed in developing a vocabulary common to both Soviet and Western negotiators concerning the requirements for stability in the nuclear age: redundant, second-strike forces and certain constraints on active defenses.³³ It is less sure that we dissuaded them from pursuing destabilizing technologies *at the same time*, such as heavy, MIF-Ved ICBMs with constantly improving accuracies. Then again, we never completely dissuaded ourselves. Assured destruction has been nice to have in reserve, but neither side has demonstrated a commitment to limiting itself to that capability alone.

THE FUTURE

The recognition of certain habits of mind, if not a pervasive “ethic” in American strategic thinking, may be the first step to a healthier arms control and defense planning environment. The habit of relying on negotiations as a means for communicating pacific intent should alert us to the danger of hoping for more from arms control forums than may be wise. Communicating with a single adversary about a particular relationship of forces is quite different than using, for example, the Conventional Forces in Europe (CFE) negotiations for resolving the future European balance of power. The Cambridge approach took for granted the political status quo and asked what could be done with the weapons arsenals of two players to reduce the likelihood of war. No arms control forum with a weapons agenda should be asked to go beyond this to resolve the political agendas of participating states.

The habit of assuming that other states do not have the technological capabilities we possess or could possess if left on our own, is particularly dangerous during this period of transition. Third parties are increasingly capable of developing or acquiring sophisticated technologies and nuclear capabilities.

We must also be careful to guard against the belief that facts and logic alone will produce “right” or “best” answers which will become naturally evident to all. The workings of pride, nationalism, tradition, and the historical grudge are bound to affect national outlooks and aspirations for many years to come. Washington should not shrink from approaching allies and adversaries with rationalist models for ordering security. This kind of liberal optimism is an American trait that may be increasingly inspiring to a world community bent on economic stability.

Finally, it is tempting to suggest that the most dangerous habit has been to deny our political purposes. The Cambridge approach was certainly concerned with technical arms control, but also with serving a particular political order: the status quo of the late 1950s. The strategic angst which marked that period—whether or not to deliver nuclear weapons into Europe—marked the arms control paradigm forged at that time.

Nevertheless, this temptation to recommend a more conscious and consistent political purpose for arms control ought to be resisted.³⁴ Ambiguity of political purpose in our arms control policies has done more good than harm. The odd patching of antinuclear moralism, extended deterrence, centralization of nuclear command and control in NATO, nonproliferation, nuclear “control sharing,” and arms control negotiations, permitted the alliance to go from crisis to détente without ripping apart at the seams. Sometimes clarity is the enemy of common purpose. Clarity about American preference for a bipolar international system, which implicitly involved affirmation of a divided Europe, would have rendered NATO politically unworkable, even as it ensured a certain strategic stability. Luckily, the arms control community never made much of the political premise upon which it was basing its prescription. Obviously, this cost it some domestic credibility and occasional intraalliance squabbles, but the losses may, in retrospect, have been worth it.

Indeed, several concepts of the Cambridge approach may be well worth saving if we are clear about their political underpinnings:

1. *Emphasis on nonproliferation.* As the bipolar structure of power weakens, it is not inconceivable that more regional competitors in weapons technologies will emerge to challenge American preeminence.³⁵ The Cambridge theorists' belief in the advantages of keeping the number of nuclear players to a minimum and raising the conventional-nuclear threshold has become more important with this emergence of a multipolar, politically unstable international environment. At the same time it will be important to ensure that significant reductions in the arsenals of the major nuclear weapons states do not compromise US capabilities for extended deterrence. Nonproliferation policies must be well-rounded political and technical efforts to bolster regional stability through alliance guarantees and technological restraints among nuclear exporters.

2. *Negotiated reductions in strategic arsenals with the idea of moving toward stabilizing weapons to target ratios (small, single-warhead, mobile ICBMs) and assured destruction force sizing concepts.* This should be accomplished bilaterally at first, and then with other nuclear weapons states. Although preservation of second strike forces at lower levels should be the primary goal, capacity for selective options may be important to maintain.

3. *Maintaining secure communications and adequate command and control of military assets.* The United States, which depends heavily on its communications, navigation, and reconnaissance capabilities is particularly at risk should these systems become targeted for early demise in any conflict.

4. *Keeping arms control analysis and defense planning closely linked and free of propagandistic purposes or political distractions.* Although conventional arms control forums may currently channel competitive pressures for reductions in Europe, measures which prescribe particular end-states for the relationship of forces should await the resolution of outstanding political questions regarding Europe. It is not the purpose of arms control to work out such solutions; it is the purpose and role of politics and diplomacy to do so.

The lessons learned from the Cambridge approach include recognition of those areas where the theory was either weak or wrong. The tendency to think of Europe as a single entity which receives or does

not receive the benefits of extended deterrence has been a by-product of the bipolar framework for defense and arms control thinking for the past twenty years. It must now change. As the world moves toward greater pluralism, it will be necessary to think in much more sophisticated terms about the impact of US security policies on individual European states. For example, declining threats in central Europe will not necessarily mean that US interests and threats to those interests will have declined in the Mediterranean region. Italy may become a more important ally than ever, requiring greater conventional bilateral military links than in the past.

Second, consideration of limited defensive deployments would also be in order given the likelihood of proliferating ballistic missile and nuclear/chemical war technologies. In this respect the importance the Cambridge theorists placed on managing crisis stability through rigorous attention to the technical dangers of accidental war remains justified. However, the stabilizing aspects of ballistic missile technologies are less evident now that highly precise guidance technologies are available. Neglecting the spread of such technologies to many states would be an oversight perhaps far worse than failing to oppose the MIRV technology when it emerged. This is particularly true given the likelihood that missile deployments in Third World countries are likely to be cheaply done (not hardened or dispersed as on submarines, for example) and thus could be very provocative.

Finally, all of the above suggests that the political leadership in Washington must try to do what the Cambridge theorists failed to accomplish: explain the intricate requirements of security and stability to the American people. History suggests that Americans may, in the aftermath of the Cold War, become preoccupied with a retraction of power and the vagaries of their political and economic fortunes at home. A well-organized approach to the requirements for arms control may be an avenue for explaining the need for disciplined military power at a time of drastic international change. The nuclear issue has not lost its force as a compelling argument for maintaining an active role in global affairs. It is, after all, the abyss that makes the leap from the Cold War so awesome.

ENDNOTES

- ¹John Mueller, "The Essential Irrelevance of Nuclear Weapons: Stability in the Postwar World," *International Security* 13 (2) (Fall 1988): 55-80; John Lewis

Gaddis, *The Long Peace: Inquiries into the History of the Cold War* (New York: Oxford University Press, 1987), especially chap. 8, 215–45.

²Ibid.

³See Jennifer E. Sims, *The Development of American Arms Control Thought, 1945–1960* (Ann Arbor, Mich.: University Microfilms International, 1986); see also Jennifer E. Sims, *Icarus Restrained: An Intellectual History of American Arms Control, 1945–1960* (Boulder, Colo.: Westview, 1990).

⁴Gary Quinn and Karin Plaskett, eds., *Collected Papers: The Summer Study on Arms Control* (Boston: The American Academy of Arts and Sciences, 1951).

⁵Art Barber, “Are We Talking to Ourselves?” in Quinn and Plaskett, *The Summer Study*, 37.

⁶The important conceptual shifts in nuclear strategy which occurred during the 1940s and 1950s are discussed in Marc Trachtenberg, “Strategic Thought in America, 1952–1966,” *Political Science Quarterly* 104 (2) (Summer 1989): 301–34.

⁷The best work to date on the integration of nuclear weapons into NATO war plans has been done by Robert Wampler, a doctoral student at Harvard University. See his “NATO Strategic Planning and Nuclear Weapons, 1950–1957,” *Nuclear History Program Occasional Paper*, No. 6, (College Park, Md.: Center For International Security Studies, 1990).

⁸The best work on the relationship of nuclear weapons to the German question is Catherine M. Kelleher, *Germany and the Politics of Nuclear Weapons* (New York: Columbia University Press, 1975).

⁹For an extensive bibliography of the literature on limited war see the Appendix in Morton H. Halperin, *Limited War in the Nuclear Age* (New York: John Wiley and Sons, 1966).

¹⁰For example, toward the end of the Truman administration a panel organized by Secretary of State Acheson and chaired by Robert Oppenheimer recognized the growing importance of limited measures and the need to integrate arms control and defense planning. For more on this history see McGeorge Bundy, *Danger and Survival, Choices about the Bomb in the First Fifty Years* (New York: Random House, 1988), especially 288–90. For more details also see by Bundy, “Early Thoughts on Controlling the Arms Race: A Report to the Secretary of State, January 1953,” *International Security* 7 (Fall 1982): 3–27.

¹¹See Bundy, “Early Thoughts on Controlling the Nuclear Arms Race.” See also Sims, *American Arms Control Thought* especially 185–88 and 306–8.

¹²This is not to say that there were no individuals thinking along these lines within the government; among the most important early advocates of rationalizing arms control and defense policy within the Eisenhower administration was Robert Bowie, head of Policy Planning in the State Department. For the best work to date on the Eisenhower administration’s arms control policies see Charles A. Appleby Jr., “Eisenhower and Arms Control, 1953–1961: A Balance of Risks,” diss., Johns Hopkins University, 1987.

- ¹³The discussion during the Summer Study turned on the paper by Dalimil Kybal which in turn was based on a paper, "Security, Arms Control and Deterrence," delivered before the Asilomar Strategy Seminar on 27 April 1960.
- ¹⁴"The urgency is in the vulnerability of strategic weapons themselves." Thomas C. Schelling and Morton H. Halperin, *Strategy and Arms Control* (New York: Twentieth Century Fund, 1961), 9. See also Quinn and Plaskett, *The Summer Study*, 207.
- ¹⁵There was some discussion during the Summer Study seminars of the advantages of Minuteman over Polaris. ICBMs could be counted and hardened whereas submarines could be picked off covertly, would not be visible and thus would cause great insecurity for the Russians. See the *Summer Study*, 53.
- ¹⁶"If the participants in a comprehensive arms-control arrangement want security, simultaneous with a reduction in the level of armaments, a diversified mix of retaliatory weapons may permit a lower level of total armaments than would be acceptable if each has to rely on a single weapon system." Schelling and Halperin, *Strategy and Arms Control*, 55.
- ¹⁷Quinn and Plaskett, *The Summer Study*, 49; especially remarks by Donald Brennan.
- ¹⁸Much to Lilienthal's regret the plan handed to Bernard Baruch for presentation in the United Nations was subtly but significantly altered by its new public advocate. Baruch's emphasis on the veto and the retention of a US monopoly until mechanisms for inspection were complete, ensured that the Soviets would balk and the plan would become an artifact of the Cold War.
- ¹⁹William T. R. Fox, "Atomic Energy and International Control," in Otto Hieronymi, ed., *Technology and International Relations* (New York: St. Martin's, 1987), 102–25, especially 118–25.
- ²⁰Warren Amster, "A Theory for the Design of a Deterrent Air Weapon System" (San Diego: Convair-General Dynamics Corporation, 1955).
- ²¹*Bulletin of the Atomic Scientists* 12 (May 1956): 159–64.
- ²²Amster.
- ²³See Schelling and Halperin, 17–23.
- ²⁴Thomas C. Schelling, *The Strategy of Conflict* (New York: Oxford University Press, 1963), 83.
- ²⁵Of course, others had worked on the game-theoretic aspects of strategy more generally. See Herman Kahn and Erwin Mann, "Game Theory" (Santa Monica: The RAND Corporation P-1166, 1957). C. W. Sherwin also suggested the relevance of game theory without exploring it formally in "Securing Peace through Military Technology," *Bulletin of the Atomic Scientists* 12 (May 1956): 159–64. For an interesting discussion of the relationship of game theory to nuclear strategy see Barry O'Neill, "A Survey of Game Theory Models on Peace and War," York Centre for International and Strategic Studies, *Occasional Paper* No. 9 (Toronto: York University, March 1990).
- ²⁶Quinn and Plaskett, *The Summer Study*, 42.

²⁷See the discussion of Polaris in *The Summer Study*, 44. Also Brennan's comments in the same volume, 59.

²⁸Schelling and Halperin, *Strategy and Arms Control*, 30.

²⁹See, for example, the work of David F. Cavers, "The Challenge of Planning: Arms Control" *Foreign Affairs* 34 (1) (October 1955): 55–66; and "International Control of Armaments," *Annals of the American Academy of Political and Social Science* 296 (November 1954): 117–19.

³⁰Edward Luttwak, "Why Arms Control Has Failed," *Commentary* 65 (January 1978): 19–28.

³¹Interview with Donald Brennan, February 1979.

³²Any nuclear withdrawal would be likely to cause angst among Europeans and perhaps propel them towards the acquisition of independent and highly articulated nuclear arsenals. But deploying US nuclear systems throughout the region and especially quick reaction systems near the forward edge of the battle area (FEBA) would create problems for security, centralized command and control, and the maintenance of a high threshold against first use.

³³The most important work in this regard is probably David Holloway, *The Soviet Union and the Arms Race*, (New Haven: Yale University Press) 1983.

³⁴Robin Ranger, *Arms and Politics, 1958–1978* (Toronto: MacMillan of Canada, 1979).

³⁵Defensive systems, whether we like it or not, may have to be developed to counter a much more varied security environment. Of course, the unstated but implicit argument is that the habit of thinking in bipolar terms is sorely outmoded for long-range planning.

Nuclear diffusion to small powers would also: create a situation in which the diffusion of nuclear weapons to irresponsible or criminal organizations and individuals is facilitated; complicate future problems of control by making such control involve the small powers' having to accept an obvious reduction in their sovereignty (that is, they would give up something, rather than abstain); give the Soviet Union or another large power many opportunities to act as agent-provocateur; and create the capability, and therefore the pressure, for many nations to make a crisis serious or to exploit an ongoing crisis (such as by catalytic war or escalation).

Herman Kahn

From "The Arms Race and Some of Its Hazards"
Dædalus, Fall 1960: page 777.

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